

THE

PITTSBURGH

Quarterly Trade Circular.

VOL. I.—NO. I.

CONTAINING A CONDENSED HISTORY OF

PITTSBURGH AS IT IS,

GEORGE H. THURSTON.

OCTOBER, 1857


PITTSBURGH.

PRINTED BY W. B. HAYES, CORNER OF MARKET & THIRD STS.
1857.

UNIVERSITY OF PITTSBURGH



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THE PITTSBURGH QUARTERLY TRADE CIRCULAR, (a Prospectus of which will be found on second page of the cover,) being designed to exhibit the trade, resources and advantages of Pittsburgh, it is thought proper that the first number should contain such an exposition of what constitutes Pittsburgh, and what are its resources and advantages, as are contained in "Pittsburgh as it Is."

For the convenience of reprinting which, and for the accommodation of those who may wish to preserve such a record of the principal manufacturing city of the Union, it has been thought expedient to issue the first number of the "QUARTERLY" in book form.

Hereafter, the "QUARTERLY TRADE CIRCULAR" will be issued in a sixteen page quarto form.

For further particulars, persons will refer to the Prospectus.

PITTSBURGH AS IT IS.

CHAPTER I.

WHAT CONSTITUTES PITTSBURGH.

Pittsburgh has been much undervalued abroad, from her population being improperly stated in the census and other public statistics. The census gives separately the number of inhabitants in Pittsburgh, and in Allegheny City, but ignores, in connection therewith, the population of our suburbs, which contain a large proportion of our citizens.

Pittsburgh in reality consists of nine distinct municipalities, viz: The Cities of Pittsburgh and Allegheny, the Boroughs of Manchester, Duquesne, Lawrenceville, East Birmingham, Birmingham, South and West Pittsburgh; and in the manufactures and business of Pittsburgh, they hold to the city the relation of wards. In these pages, the whole is considered under the general title of Pittsburgh.

The area of ground covered by Pittsburgh extends in a straight line along the Ohio and Monongahela rivers $4\frac{1}{2}$ miles, and an equal distance along the Allegheny and Ohio; and fills, likewise, a triangular space between the Monongahela and Allegheny, of $2\frac{1}{2}$ miles base, by 3 miles on either side, embracing in all her surface, 5,376 acres of ground.

The growth of the city has apparently been slow, but its result is sound. While other Western cities have been yearly making reports of their progress, and continually crying out to the merchant, the mechanic, the capitalist, here is "El Dorado," Pittsburgh has been silently, industriously, but with almost equal rapidity, enlarging her proportions and increasing her wealth. The characteristic of the community is to create wealth without noise.

Bewildered in the almost fabulous accounts which have been put forth from time to time, of the progress of other western cities, the Capitalists, the Merchants, and the Mechanics of the United States have taken little or no heed to the progress of Pittsburgh. Therefore, with wonder, visitors behold the sooty giant who stands astride the head waters of the Ohio, and, with astonishment, consider the promise given by its present immense powers and resources, of its future overshadowing bulk.

In the last seventeen years, despite a conflagration, which, in a few hours, swept out of existence \$10,000,000 of her capital, and of serious and frequent interruptions to her business by great drouths, severe frosts and the presence of pestilence, immense manufactories have been built and kept in operation, extensive coal beds have been

worked, rail roads built, hundreds of steamboats constructed, whole streets of houses erected, costly public buildings built, acres of ground covered with dwellings, and a population of 138,000 people gathered into her limits, with less than \$10,000,000 of mortgages.

That those disasters have had a serious effect in checking, for at least ten years, the progress of Pittsburgh, and thereby giving other points the advantage in a comparison of increase during that past time, there can be no doubt.

The fire of 1845 destroyed \$10,000,000 worth of property, which was said to have been replaced in eighteen months, from the resources of those who were the losers by the conflagration. Is it not at once evident, that if the \$10,000,000 which it took to replace the capital destroyed, had not been required thus to supply the loss, it would naturally have been used by the possessors in further extensions of the city and its business, instead of being necessarily applied to maintain the business and the city in the position they occupied the day previous to the fire?

Pursuing this thought further, we may start the inquiry of what would have been the result to Pittsburgh, if the loss of the 10th of April, 1845, could have been avoided? The \$10,000,000 of capital in such a case saved, employed in manufacturing, and yielding but 10 per cent. yearly profit, would have produced, without considering the yearly produce of the profits reinvested, as would naturally be the case, the sum of \$12,000,000; thereby giving to our business community an additional capital of \$22,000,000.

Taking this and the losses sustained by low water, ice and pestilence, into proper consideration, and the progress she has made, under all these reverses, it is just to say that, enjoying the same freedom from public misfortune as other cities, from this time forward, *she will be henceforth the most accumulative and progressive city of the Union.*

CHAPTER II.

GEOGRAPHICAL POSITION.

Located at the head waters of the Ohio, and at the junction of the Monongahela and Allegheny rivers, Pittsburgh commands an inland navigation of many thousands of miles, and combines more geographical advantages of position than any inland city or town in the United States. Distant only from 300 to 400 miles from three of the most important seaboard cities of the Union, and but a summer day's ride from either, for the purposes of exportation or importation she possesses many of the advantages of the cities lying immediately upon the sea coast.

About 200 miles from the great chain of inland seas, to whose shores access is had in a few hours' ride, she partakes of the advantages of the Lake cities for intercourse with the Canadas, and for outlet through the lake route to the ocean; while by her rivers she com-

mands another and an easy access to the ocean and foreign nations. Thus having the choice of three avenues whereby she may export beyond the borders of the United States her manufactures, or receive the products of other countries. And if the articles demand such transportation, *unbroken water carriage from the city to the ocean, through all three of the routes.*

Situated in the heart of the bituminous coal formation of the Appalachian field, and equally advantageously located as to the deposits of iron ore, her geographical relations to the staple materials of Pennsylvania, as well as of the Union, are unequalled.

Her location to the whole extent of country bounded by the Atlantic ocean on the east, the Gulf of Mexico on the south, the Mississippi river on the west, and the Lakes upon the north, is so nearly central, that, when viewed with reference to her natural means of intercourse with the States within those boundaries, she stands in the position of a geographical center. Describing upon an accurately proportioned map of the United States a circle, with a radius of 400 miles from Pittsburgh, it embraces therein the following States entire, and in parts: Pennsylvania, New York, Vermont, Massachusetts, Connecticut, Rhode Island, Delaware, New Jersey, Maryland, Virginia, Ohio, North Carolina, Tennessee, Kentucky, Indiana, Michigan, Canada West, part of Illinois, and the northern portion of South Carolina. This circle embraces every variety of climate, and nearly, if not quite all, the staples of the various sections of the Union; for the products and the business of which, Pittsburgh, as the center of the circle, reaches but 400 miles on either hand.

To this extent of country the manufacturing advantages that Pittsburgh and its neighborhood possess, must always prove a magnet attracting business and population.

Beyond her qualities as a manufacturing community, Pittsburgh possesses another attractive feature—*she is the gateway of the West.* From her situation at the head of the Ohio, such articles as have a preference for water carriage, either on account of demanding low freights, or from a desirability to be but little handled, must pass through Pittsburgh to reach such a channel for distribution through the West.

The key point of a railway route, nearer by forty miles from New York city to the Western States than any line of rail road now constructed, or contemplated, the travel between the eastern and western sections of the country will find its way through Pittsburgh, via the Pennsylvania Central Rail Road, and the western roads branching from Pittsburgh to all the sections of the West, North-west, and South-west; as will also such articles of commerce exchanging between the East and the West as admit of railway carriage.

Reaching through natural avenues of travel, the following States and counties by steamboats, without transshipment of goods, no one can, viewing in connection with our railway system these great river facilities, dispute to any extent, the propriety of allowing to Pittsburgh the title of "The gateway of the West."

By the Ohio river, from Pittsburgh to Cairo, touching every important point in Western Virginia, Southern Ohio, Northern Kentucky, Southern Indiana, and Illinois. By the Mississippi, the towns and

counties bordering upon that river in Louisiana, Mississippi, Arkansas, Tennessee, Missouri, Illinois, Iowa, Wisconsin, and Minnesota. By the Missouri river, Central Missouri, Kansas, and Nebraska. By the Arkansas and White rivers, Central, Southern and Northern Arkansas. By the Red river, Central Louisiana. By the Wabash, Central Indiana. By the Tennessee, Western Tennessee, Kentucky and Northern Alabama. By the Cumberland, interior of Kentucky and Northern counties of Tennessee. By the Big Black and Yazoo rivers, inland Mississippi. By the Minnesota, the interior of Minnesota. By the Illinois river, the interior of Illinois. By the Muskingum river, the interior of Ohio. By the Allegheny, the Northern portion of Pennsylvania, and the South-western of New York. By the Monongahela, South-western Pennsylvania and Western Virginia.

Thus reaching by river navigation, fourteen States and two Territories—not only the border counties thereof, but the interior of those States as well, affording unparalleled facilities for reaching from the 46th degree of northern latitude to the 30th; from the first degree to the 22d longitude west from Washington, embracing an area of country 1200 by 960 geographical miles, or 1,052,000 square miles of territory; all of which is reached in all directions by continuous river navigation from Pittsburgh.

Of this extent of country, the Ohio river passes along the borders of 6 States, watering the shores of 64 Counties, viz: 2 in Pennsylvania, 8 in Virginia, 13 in Ohio, 24 in Kentucky, 12 in Indiana, and 5 in Illinois. The Mississippi traverses the boundaries of 10 States, and gives navigation to 83 Counties, viz: 3 in Minnesota, 9 in Iowa, 3 in Wisconsin, 13 in Illinois, 15 in Missouri, 2 in Kentucky, 5 in Tennessee, 10 in Mississippi, 5 in Arkansas, and 18 in Louisiana. The Missouri washes the shores of 24 Counties in Missouri. The Tennessee gives water transportation to 3 States, and outlet to 14 Counties, viz: 3 in Alabama, 7 in Tennessee, and 5 in Kentucky. The Cumberland affords water carriage through 2 States and to 9 Counties, viz: 5 in Tennessee, and 4 in Kentucky. The Illinois and Kaskaskia give to 24 Counties in Illinois navigation; and the Wabash, similar privilege to 10 Counties in Indiana, and 5 in Illinois. The Arkansas affords to 12 Counties in that State a like advantage; and the Red River, the same to 9 Counties in Louisiana. The White river gives carriage by water to 10 Counties in Arkansas. The Yazoo, the Sun Flower, and Big Black, afford to 9 Counties in Mississippi travel by river communication. The Hatchee and Obion the same facilities to 7 Counties in Tennessee. The Kentucky, Green, and Big Barren rivers, egress to the Ohio, to 12 Counties in Kentucky. The Osage, La Mine, Grand and Maramce rivers, steamboat navigation to 13 Counties in Missouri. The Des Moines and Iowa rivers give to 8 Counties of Iowa access to the Mississippi by water; and the Wisconsin, Rock, Chippewa, and Black rivers, the same facilities to 13 Counties in Wisconsin. The Allegheny gives 2 States, and 8 Counties in Pennsylvania and 2 in New York, communication by water to a market for their productions, and the Monongahela similar advantages to 2 States, and 5 Counties in Pennsylvania and 1 in Virginia—being 340 Counties to which Pittsburgh has direct communication—forming portions, as before observed, of Fourteen States and Two

Territories, by the rivers named—in addition to which, there are many others unnamed.

This sketch of the inland navigation on rivers, possessed by Pittsburgh, affords a brief view of its extent. Of its present and future value we gather from the following figures, drawn from the census of 1850, some idea. In the 340 Counties reachable by the aforementioned thirty rivers, there was in 1850 a population of 4,600,426, and farms of a cash value of \$601,312,416, on which were live stock worth \$87,413,443, and producing \$218,992,007 annually of the various agricultural crops.

CHAPTER III.

MINERALOGICAL POSITION.

Located in the north-western section of the great "Allegheny or Appalachian coal field," frequently known as the great central bituminous coal seam, Pittsburgh has given to that portion of the coal measures from which her wants and those of the West are supplied, her own name.

M'Cullough estimates that the Appalachian coal field, which traverses eight States, has an area of 65,300 square miles. R. C. Taylor, Esq. in his "Statistics of Coal," says that deducting from this the unproductive areas, erosions of strata, and such coal fields as will never be reached by the miner, the workable area of the whole is 40,000 square miles, or 25,600,000 acres.

Of this bituminous coal strata, according to M'Cullough, Virginia has 21,000, Pennsylvania 15,000, Ohio 11,900, and Kentucky 9,000 square miles.

The bituminous coal field lies principally west of the Allegheny Mountains, and extends from Towanda on the north-east to the south-west angle of the State, a distance of two hundred and seventy miles. "The Great Pittsburgh Seam" is finally exposed at Pittsburgh, and along the Ohio and Allegheny rivers; also extending nearly the whole length of the Monongahela river. This seam has been traced through Pennsylvania into Virginia, and also into Ohio, and is from twelve to fourteen feet thick at the south-western border, from six to eight feet at Pittsburgh, and about five feet still further westward, in Ohio.

Of this seam, Mr. Lyell, the eminent English Geologist, says in his travels in North America, "I was truly astonished, now that I had entered the hydrographical basin of the Ohio, at beholding the richness of the seams of coal which appeared every where on the flanks of the hills, and at the bottoms of the valleys, and which are accessible in a degree I never witnessed elsewhere. The time has not yet arrived when the full value of this inexhaustible supply of cheap fuel can be appreciated."

Towards the north and north-eastern side of the coal range the seams vary from three to four feet.

At Blossburg, and around the head of Tioga river, from three to six seams occur.

At Pittsburgh the main bed of workable coal is six feet, and increases in thickness as it proceeds up the river to Brownsville, where, as mentioned before, it is estimated by Lyell at ten feet.

Extensive as is the field of bituminous coal in Pennsylvania, thus scantily dotted out in these remarks; and incalculably valuable as it is to Pittsburgh as a manufacturing city; not less valuable to her is the anthracite deposit of coal, when viewed in connection with the consumption of iron by her manufactories.

While the coal fields of Pennsylvania may be considered as leading in importance to Pittsburgh, as a manufacturing city, yet the carboniferous deposits of the surrounding States bear upon her prosperity in a greater or less degree, according to their quality and proximity.

The coal fields of Tennessee, Kentucky, Ohio and Virginia, by reason of the natural avenues of transportation and trade, stand in a supporting relation to the coal measures of Western Pennsylvania.

The area of the Tennessee coal field is 45,000 square miles, of Ohio, 44,000, and of Kentucky, 40,500. A certain portion of these in each, are iron producing regions at the present time, and will no doubt become yet more productive.

These three States, from reason of their production of iron—a portion of which comes to Pittsburgh for a market—must always in their mineral productions, be important auxiliaries to the manufactures of Pittsburgh.

Not less to the iron deposits which surround this locality, than to her coal, is Pittsburgh indebted for her past, and dependent for her future. Cheapness of fuel, in the larger proportion of cases, justifies a transportation of mineral to the locality of the fuel; but where the transportation of mineral is necessary but for short distances, and by easy artificial and available natural channels, the combination of cheapness of fuel, with great supplies of mineral immediately at hand, constitutes the locality which must become, and always be, a great manufacturing center. These two requisites Pittsburgh has.

Having briefly sketched the coal fields surrounding the locality of Pittsburgh, we spare a few paragraphs to an equally brief description of the ore field from which she has drawn, and is to draw, her supplies of iron.

Throughout the counties embraced in the bituminous coal region, are to be found extensive beds of iron ore, and equally large deposits in the counties east of, and lying along the bases of the Allegheny Mountains. The Allegheny river affords a cheap channel for the supply of iron from the counties lying upon that river, and the Monongahela, for the iron from the neighborhood of the Youghiogheny and Cheat rivers. The Pennsylvania Canal, and the Pennsylvania Central Rail Road, for the metal of the interior and mountain counties. In the Allegheny river region, there are five counties and about fifty furnaces, whose product finds in this city a market; the region drained by the Pennsylvania Canal and the Pennsylvania Central Rail Road, contains nearly as many more, whose product, in part, or wholly, is sold in this vicinity. These two regions have been so fully opened up, that the quality and extent of their metal are well under-

stood, and need no description here. Of the iron of the Youghiogheny region, Professor Duceatell, in a Report to the Maryland Legislature, 1833, says :

"On the Youghiogheny, iron ore of the best quality, and in great abundance, is found. It is of the variety described by mineralogists under the specific head of argillaceous oxyd of iron."

The deposits of iron thus favorably described, have been but little worked as yet, although there are some six or eight furnaces in that region. The opening of the Connellsville Rail Road, and the increasing demand for metal, will undoubtedly soon attract capital to that locality. To the westward of this point, there are in blast, in Eastern Ohio, and in Mercer county of this State, many furnaces, whose number is yearly increasing, which look to Pittsburgh for a market, and whose metal is transported here by water carriage.

The furnaces of Kentucky, Tennessee, and the central river counties of Ohio, also send their metal here for sale ; and a portion of it is considered a choice article. It will be noticed that in iron, as in coal, Pittsburgh is centrally situated to the products of four States, and that she is in her own State immediately surrounded by vast deposits of that mineral ; while in all instances, a cheap water carriage is available for the transportation of it to the fuel.

What has been the natural effect of such a mineralogical position upon the past of Pittsburgh, and what will be its effect upon her future, it is hardly necessary to inquire.

The two substances, coal and iron, are always, when available, the basis of great and permanent commercial and manufacturing wealth. Spreading a map of the nations of the earth before us, we at once perceive that those in which exist extensive deposits of these two, at first glance unattractive substances, are among the wealthiest, as well as most powerful nations of the world ; and that upon and around these formations, the most flourishing populations are concentrated. "Coal," says Vischers, "is now the indispensable aliment of industry. * * It is to industry what oxygen is to the lungs—water to the plant—nourishment to the animal." Says Elett, "This is essentially the age of commerce and of steam, the foundations of which are our coal mines. In the machine shop and factory, on the rail road and canal, on the rivers and ocean, it is *steam* that is henceforth to perform labor, overcome resistance, and vanquish space. There was no appreciable iron trade anterior to the introduction of the steam engine, an instrument of power deriving its efficiency almost entirely from *coal*."

The connection of the past of Pittsburgh with the coal deposits of Pennsylvania, so rich and so easily mined, is too plain to need comment. Coal has been the life of the steam engine, and the steam engine has been the great power which has called into existence our manufactures. On the future of Pittsburgh, as connected with her two minerals, we have no need to expatiate. Her past progress, under the influences of coal and iron, indicates her future.

"The employment of the combustible mineral *coal*, in the smelting of iron, has emancipated the iron manufactory. Henceforth the mineral comes to seek the fuel.

"Coal is the most essential agent to industry. The foundry, the iron, constitute merely the instruments, the elements of riches."*

"The occurrence of iron ore associated with coal has been considered the most prolific source of commercial prosperity possessed by Great Britain. Her political economists have long been accustomed to ascribe the extent of her manufactories to the abundance and cheapness of both these substances, by which are furnished, not only fuel for working the steam engines which put in operation their machinery, but the material also for constructing the machinery."†

"Of all the physical circumstances which have contributed to our extraordinary progress in manufactures and industry, none have so much influence as our possession of valuable coal mines."‡

"Since the invention of the steam engine, coal has become of the highest importance as a moving power, and no nation, however favorably situated in other respects, not plentifully supplied with this mineral, need hope to rival those that are, in most branches of manufactures."‡

"Our coal mines have conferred a thousand times more real advantages upon us than we have reaped from the conquest of the Mogul Empire, or than we should have reaped from the conquests of Mexico and Peru."‡

The remarks of the various writers we have quoted, are overwhelmingly forcible in their application to Pittsburgh. It needs no drawing of inferences to sustain how powerfully the past of other localities of coal and of iron foretell the future of Pittsburgh.

When these two substances, as in the location of Pittsburgh, combine with natural and artificial advantages, of great availability and extent for the distribution of their products, as well as easy, cheap, and rapid means of concentration at the manufacturing point of the raw material, can it be a subject of hesitancy to decide upon the employment of capital in manufactures at this point? Says an authority we have already quoted, "Production, which outstrips all local necessities, urgently demands new outlets. Embarrassment no longer attaches to production; the trouble rests henceforth with distribution."§

Possessed of a river navigation of many thousands of miles; reaching thereby nearly 400 counties, with their millions of population—penetrating by these avenues into 15 States of the Union—commanding three distinct avenues of access by water to the ocean—the terminus of an extensive rail road system, spreading its iron net work over eight States, and reaching hundreds of inland cities and towns, otherwise unapproachable, excepting by the stage coach and road wagon—Pittsburgh laughs at the last sentence of our quotation, "The trouble rests henceforth with the distribution."

Proof, in her past, of the quotation from the same authority, that "henceforth the mineral comes to seek the fuel"—sustained in her expectations of the future by the experiences of the past of the cities and towns of other coal formations—triumphant in her geographical position over the

*Bulletin de la Commission Centrale de Statistique Bruxelles, 1843.

†Pucattell's Report to Maryland Legislature, 1833.

‡McCullough's Statistics of English Manufactures.

§Commission Centrale de Statistique, 1843.

troubles of distribution—what city, what locality, offers such bright features for examination by the capitalist, the merchant, the mechanic, the laborer? What point presents greater inducements to labor, to skill, to ability, and to capital?

CHAPTER IV.

NATURAL AND ARTIFICIAL TRANSPORTATION ADVANTAGES.

In a previous chapter we have stated that the transportation advantages of Pittsburgh were not surpassed by those of any other city or point in the United States. To the support of this observation, we name briefly the natural and artificial channels for distributing the products of our manufactories. Considered in the proper order, the rivers are the first in rank. At the risk of a little reiteration, we enumerate them, and present in tabular form the length, value by population, &c.

TABLE showing principal Rivers navigable from Pittsburgh without transhpmnt, giving length navigable, &c.

Rivers.	States pass'd.	Counties.	Miles navigable	Population.	Value of Agricultural Products.
Allegheny	2	10	248	408,427	\$ 11,980,747
Arkansas	1	12	622	52,321	2,015,522
Big Black	1	4	60	58,301	3,824,803
Cumberland	2	8	203	107,805	7,060,321
Des Moines	1	5	200	51,413	2,039,450
Green	1	7	165	81,410	9,650,577
Grand	1	3	100	17,202	405,988
Hatchee	1	7	75	84,245	5,446,017
Illinois	1	18	302	174,192	12,748,597
Iowa	1	3	80	14,368	723,372
Kaskaskia	1	6	150	57,570	1,927,636
Kentucky	1	4	105	39,874	2,896,810
La Mine	1	2	30	20,793	1,005,539
La Poudre	1	3	60	30,822	2,013,331
Missouri	1	24	2,575	316,812	18,156,438
Mareme	1	3	60	122,972	1,706,717
Monongahela	2	5	56	170,327	6,532,604
Muskingum	1	3	80	103,174	3,645,962
Mississippi	9	80	2,000	991,087	48,512,662
Ohio	6	56	1,008	1,110,335	44,823,579
Osage	1	5	200	22,222	1,101,218
Obion	1	2	60	13,900	877,962
Red	1	9	620	79,213	4,297,245
Rock	1	5	225	43,206	2,118,927
Sun Flower	1	1	80	8,329	1,190,785
Tennessee	3	14	280	138,711	9,759,971
Wabash	2	15	369	159,414	8,253,661
White	1	10	439	36,224	3,374,521
Wisconsin	1	6	160	87,398	1,132,292
Yazoo	1	6	300	54,079	6,154,758
Total	15	336	11,212	4,527,025	\$218,992,007

In addition to these, there are many others, of whose navigable length we have no survey.

The means which are next in rank are the rail roads of the Pittsburgh rail system. Of these, there are nine, viz: Pennsylvania Central, Pittsburgh, Fort Wayne and Chicago, Pittsburgh and Connellsville, Pittsburgh and Steubenville, Cleveland and Pittsburgh, Allegheny Valley, Chartiers Valley, Pittsburgh and Erie, and Cleveland and Mahoning, the direction, value, scope and connections of which are treated of in the fifth chapter of this book.

Canals are also among the means of transportation extensively available to this city; and, although in these days of fast traveling they are much overlooked, yet in their peculiar ability, are equally important with the river and the rail road.

By her canals, Pittsburgh is enabled to transport to the lakes those heavy articles produced in her manufactories, which demand cheap in preference to rapid transportation. 1st. By the Beaver and Erie Canal, from Rochester to Erie, 136 miles. 2d. By the Ohio Canal, from Portsmouth, on the Ohio, to Cleveland, 309 miles. 3d. By the Pennsylvania Canal and its branches, she has access to the Atlantic sea board, and the interior of Pennsylvania, and a portion of New York, allowing the transportation of her minerals and her productions at a low rate, into the Eastern cities.

CHAPTER V.

THE PITTSBURGH RAILWAY SYSTEM.

The Pittsburgh railway system is, taking into consideration the scope of its connections, one of unsurpassed value.

Reaching westward by the PITTSBURGH, FORT WAYNE AND CHICAGO RAIL ROAD to Chicago, a distance of 466 miles, it embraces in its connections the entire net-work of roads which cover the States of Ohio, Indiana and Illinois; and by various projected, chartered and initiated roads, it reaches through the States of Missouri and Iowa.

Its character is that of a great trunk line from the seaboard to the North-west, having for its termini those two great rail road centers, Pittsburgh and Chicago. The value of this trunk route is shown by the fact that it passes through and into four populous States, and gives transportation facilities to twenty four counties in those States, which counties had, in 1850, a population of 558,245; farms whose cash value was \$92,515,749, on which was live stock to the value of \$15,837,512, and producing \$26,722,501 bushels of grain.

The connections of this road by the Indiana and Bellefontaine, and the Terre Haute and Alton routes, and by connection from Fort Wayne to the Mississippi river at Alton, and from Crestline to Cincinnati by the Cleveland, Columbus and Cincinnati Rail Road, are also valuable. In those connections it drains forty-three counties

lying in three different States, which counties, in 1850, had 772,158 inhabitants; farms whose cash value was \$114,221,921, on which were live stock to the value of \$14,132,196, and which produced, in 1850, 43,404,022 bushels of grain.

It also receives its share of the business concentrated at Chicago, by that system of rail roads which, in 1856, was represented by 3,350,000 passengers, and by \$17,343,242.23 of earnings.

By its trunk route, and the three direct connections described, it drains a total of 67 counties, with a population, in 1850, of 1,330,403, and producing 70,124,443 bushels of grain—having a value of live stock amounting to \$29,969,618 and farms to amount of \$200,737,670.

In addition to these, there are many short connections in the same range laid down in these routes, which run through populous counties, whose statistics must be passed, as the space devoted to an exhibition of the value of the Pittsburgh, Fort Wayne and Chicago road to Pittsburgh is already overrun.

The working statistics of this road, from November 30, 1855, to October 31, 1856, were as follows:

The number Through tons Freight West, was.....	99,224
“ “ “ “ “ East, “	111,889
“ “ Tons carried one mile West, “	12,850,272
“ “ “ “ “ East, “	7,230,000
“ “ of Passengers transported, Way and Through, was... ..	472,578

The earnings for the year were,

From Passengers	\$761,577.56
“ Freight	654,542.26
“ Mails, &c.....	62,368.94—\$1,478,428.76

In the above statement of transportation and carriage, the three-fourths of the figures are those of the road before its consolidation, and of the business from Pittsburgh to Crestline only—being for 187 miles out of 466.

Westward again, by the PITTSBURGH AND STEUBENVILLE RAIL ROAD, through another and distinct route, which forms a different connection with the roads of Ohio, Indiana and Illinois, affording through them a direct route to St. Louis from New York, 140 miles shorter than it is by way of Buffalo and Cleveland, according to the report of its chief engineer for 1857.

This road, by its connections through the Indiana and Steubenville Rail Road to Columbus, and the Indiana, will afford facilities to 28 counties, lying in five different States—Pennsylvania, Virginia, Ohio, Indiana and Illinois—having in 1850 a population of 679,899; farms of the cash value of \$129,689,057, on which were live stock worth \$15,485,858, and producing annually 33,484,046 bushels of grain.

The CHARTIERS VALLEY RAIL ROAD is, if the consolidation with the Hempfield and the Marietta and Cincinnati Roads is consummated, an equally important route to the city; forming, as it will in that connection, a third direct route to the West and St. Louis, and draining the southern tier of the counties in the States of Ohio, Indiana and Illinois. This route gains additional value by the oppor-

tunity which it gives. the Pittsburgh and Maysville Road being built, of direct rail road access through Kentucky and Tennessee, and a connection with the rail roads of those States debouching on the Mississippi at Memphis. The value, to Pittsburgh, of such a route as that mentioned, in connection with the Pittsburgh and Maysville Road, and to the South-west, to which it would give valuable rail privileges, and short routes to the East, is one hardly yet considered by those interested, and its development belongs to that prosperous future which awaits the Smoky City.

This road will, in traversing the country from Pittsburgh to Cincinnati, under the title of the Ohio Valley R. R., pass through twelve counties lying in three States. By the census of 1850 those twelve counties had a population of 440,732, and farms of the cash value of \$75,218,334, on which were live stock to the value of \$7,152,455, and producing annually 18,971,555 bushels of grain.

The Southern trunk road is the PITTSBURGH AND CONNELLSVILLE. On the general value of this road as a connecting link, giving access to the South-eastern States, we have remarked in another portion of this article. The value of its immediate route, taken from the census of 1850, shows that it passes through six counties lying in two States, whose population was 299,364 having farms of the cash value of \$43,254,873, with live stock worth \$4,838,561, and producing annually 8,226,802 bushels of grain.

From Cumberland, Maryland, the southern terminus of the road, the connection is made by the Baltimore and Ohio Rail Road with Baltimore and the seaboard, and thence by the various southern lines with the southern seaboard counties.

The counties through which this road passes are mineral in their character, teeming with coal and iron, which much enhance the value of the route to Pittsburgh, by giving easy access to large deposits of those staples which are the source of her strength. Between the cities of Pittsburgh and Cumberland the two termini of this road, the distance is 147 miles, and at Cumberland a connection is made with tide water by the Chesapeake and Ohio Canal; thus making, with the exception of the 147 miles railway, another water communication, through Pittsburgh, between the East and the West.

Reaching northwardly, by the CLEVELAND AND PITTSBURGH ROAD, now completed from Cleveland to Rochester, from whence it is using the Pittsburgh, Fort Wayne and Chicago track to the city—the Pittsburgh railway system reaches the Lakes, and by the steamboat routes on them, with which this work forms close connections, the rail roads of Chicago and Detroit, and thence westwardly. As a northern route this one is extremely valuable to Pittsburgh; affording an outlet to a vast expanse of country for her coal and her manufactured products, of all of which there is an increasing transportation over this route, and a growing demand in the country reached by this road and its connections. Its western connections, which are with the various roads of Ohio, are also important to the city of Pittsburgh.

Within the year 1857, this road has completed its connection with the Central Ohio Rail Road, at Belle Air, $4\frac{1}{2}$ miles below Wheeling, and the Steubenville and Indiana, at Steubenville, thereby affording short routes to Cincinnati and the South-west. This road, in its direct

route from Pittsburgh to Cleveland, traverses two States and five counties, having a population of 199 892 in 1850, with a value of farms, of \$36 62,484,—of live stock, of \$4,015,377,—producing 6,455,813 bushels of grain.

The earnings of this road, ending November, 1855, were \$581,877.89, of which \$350,799 09 were derived from freights \$204,041.34 from passengers. For the year ending November, 1856, the earnings were over \$653,000.

The outlet to the lake region, which this road will give to Pittsburgh coal, is of itself sufficient to characterize it as peculiarly valuable to this community. Extensive arrangements are being made to ship heavy amounts of Pittsburgh coal over this route this year to the Lakes, to Canada and to New York.

The ALLEGHENY VALLEY RAIL ROAD, running through the rich mineral and lumber region from which it derives its title, is the sixth trunk road of the Pittsburgh system. It is completed to Kittanning, a distance of 44 miles. When finished, it will have many and valuable connections.

In its direct route it passes through 7 counties with a population of 130,635 in 1850; and by the same census having farms to amount of \$21,177,675—live stock valued at \$3,026,146, and raising 4,469,005 bushels of grain and 400 000 pounds of wool.

Dividing, as it does, one of the most important supporting districts of Pittsburgh, it is a line which must ultimately become very valuable to this city which will be its chief outlet for the heavy freights that will arise from the vast deposits of iron ore, salt, coal, and the great forests of valuable timber which are spread, from one end to the other, of the Allegheny valley.

There are, in three of the counties through which this road passes, over forty furnaces for the production of iron, whose capacity, in 1850, was about 10,000 tons. Two of the counties now contain over thirty salt works, producing more than 70,000 barrels of salt a year.

The character which this road will assume, when completed to the New York line, our space will not permit us to exhibit—beyond saying that its connections will give it command of the counties of South-western New York, and that it will form a third route connecting Pittsburgh with the Atlantic seaboard.

The earnings of this road for the year ending January 30th, 1857, over its completed portion of road, 44 miles, were \$77,581 91, of which \$20,224.35 were derived from freights, and \$53,705.44 from passengers.

Number of Way and Through Passengers was..... 69,243

Tons of Freight carried one mile, were..... 266,358

The seventh trunk belonging to this great outstretch of roads, is that admirably constructed one, the PENNSYLVANIA CENTRAL having its termini at Philadelphia and at Pittsburgh. This line, by its connection at Pittsburgh with the Pittsburgh, Ft. Wayne and Chicago road, and its connections, creates the shortest known routes between the East and the North-west, by 40 miles as before mentioned.

The chief engineer of the Pittsburgh and Steubenville rail road, in the report for 1857, states, that when that road is completed and its business connections made between its western terminus and the western roads, the route from New York to St. Louis, over the

Pennsylvania Central road to Pittsburgh, and thence by the Pittsburgh and Steubenville rail road, will be 140 miles shorter than by any other route.

These simple statements of distances gained by the use of this road, are sufficient to show its value to Pittsburgh as a passenger route; and under the unceasing demand of freight for low carriage, are equally determinate as to its value as a shipping channel, from the lower rates consequent on the smaller number of miles of transportation.

As it is natural for both freight and travel to seek the shortest and least expensive routes; and this being, by the saving of distance, both, it is reasonable to suppose that the travel and freight from and to the East, to and from that portion of the West which we have shown as laid under contribution by the western roads of our system, will pass through Pittsburgh and over the Pennsylvania Central road. The quantity of country thus drained by the western roads into Pittsburgh, and consequently into the Central road, consists of 104 counties, with a population, in 1850, of 3,012,972, having then farms valued at \$439,926,577, and live stock at \$55,787,917, and raising 124,585,139 bushels of grain.

There is also concentrated at Pittsburgh a river navigation of nearly 11,000 miles, giving transportation to 336 counties, which, in 1850, had a population of 4,600,426, and a value of farming lands of \$601,312,416, producing an amount of agricultural articles worth \$218,992,007, and having \$87,312,416 in live stock. To all these the Central road offers the inducement of the shortest route East.

In this view, the value of this seventh member of the Pittsburgh rail system is heavy, from the influence it must exercise in rendering the city a great point for shipment of articles exchanging between the two sections of the Union.

The tonnage of this road was,

From Pittsburgh to Philadelphia, Through,.....	177,415,403
" Philadelphia to Pittsburgh, ".....	152,903,718
The number of Passengers transported over the road during the year 1856, was.....	1,646,914
The earnings of the road for 1856, were,.....	\$4,720,193.71
From Passengers,.....	\$1,325,081.39
" Freights,.....	3,244,291.51
" Miscellaneous Receipts,.....	150,820.81

With this brief exposition of the routes of seven of the nine roads of the Pittsburgh railway system, we pause. In it we have not taken into account many unfinished and proposed routes; nor followed the lines laid down beyond their natural termini and unavoidable connections.

There are but few roads in the West not seeking an Eastern connection, and a short consideration of a complete map of the Western roads, shows how naturally they are all reaching for the head waters of the Ohio. An examination of the East and South-east will show that the roads of those sections of the country are also converging to the same point. The position thus presented of Pittsburgh, as a railway center, suggests at once a greatness, growing with the wants and productions of the greater part of the Union.

CHAPTER VI.

POPULATION OF PITTSBURGH.

Frugality and industry are prominent characteristics of the inhabitants of Pittsburgh; consequently, a large amount of conservatism is observable in all their transactions.

The reputation abroad of its merchants and manufacturers for solvency, is the result, not only of their industry, and their wealth, but of the conservative element in their business transactions; an element which has enabled them to withstand general misfortunes in business, with a firmness and ability which there are few communities can equal; and has, in her manufacturing career, built up a foundation of remarkable solidity, for the future commercial and manufacturing operations of the city to rest upon.

The industry of its population is not surpassed by that of any other city; and there is, for all the wealth of its population, fewer gentlemen of leisure than in any city of the Union.

The population may at the present time be estimated at 138,000, and the following table shows its growth from 1800:

Year.	Stores.	Houses.	Inhabitants.
1800	—	—	1,565
1807	50	702	4,740
1810	—	641	4,768
1813	—	958	5,748
1817	109	1,403	7,000
1820	—	—	7,248
1830	—	—	16,988
1836	250	4 500 ..	estimated 30,000
1840	—	—	38,931

From 1817 to 1825 the city was a stand still, from effects produced by the termination of the war of 1812. In 1817, many factories stopped, and until 1821 there was a continual downward tendency in all business and property. In 1821 the distress appeared to have reached its height; manufactories, trade and industry were all prostrated.

In 1826 and 1829, the city began to rally, and in 1830 she was again prospering. In 1837 she was, with other cities, retarded by the subsidence of the land speculation fever, and the panic. It will, however, be observed that notwithstanding these adverse years, that from 1820 to 1830 there was an increase equal to 135 per cent. or $13\frac{1}{2}$ per cent. a year; and that from 1830 to 1840, an increase of 129 per cent. or nearly 13 per cent. a year.

From 1840 to 1845 were prosperous years, and the city increased rapidly in business and population. In 1845, Pittsburgh experienced another severe check, by the great fire of 10th of April—which, beyond a doubt, retarded its progress in population and business to an extent, incalculable, otherwise than by the figures given in relation to this

subject in Chapter II. of this volume. The city, however, continued to increase, even under the weight of that loss of capital, and other things consequent, as the following table will show:

	Population.	Increase in ten years from 1830.	Increase in ten years from 1810.
1840	38,931	21,943	—
1850	79,873	—	40,942
1857	138,534	estimated at same rate of increase of previous 10 years.	

The following table shows the increase of Pittsburgh as compared with four of the principal cities of the West, from 1840 to 1857.

POPULATION.

Year.	Chicago.	Cincinnati.	Louisville.	St. Louis.	Pittsburgh.
1840.....	4,470	46,338	21,210	16,469	38,931
1850.....	29,963	115,435	43,194	80,598	79,873
1857.....	110,000	200,000	85,000	120,000	138,534

The populations for 1840 and 1850 are taken from the census and corrected by the statistical publications of those cities issued since. Those of 1857 are from reports published in the papers. Pittsburgh, embracing the eight or nine suburbs omitted in the calculation set down in the table, which so immediately join the city that there is no intermediate space, would have, calculating from the same data, a population of about 141,000.

A statement made in a publication of the Cincinnati Chamber of Commerce, 1855, estimates that the population of Pittsburgh in 1860, at the average rate of increase for fifty years, will be 172,000. We have given the data on which the calculations of the population of Pittsburgh are made, and it will be seen that we have kept within the limits warranted by the figures. The calculations of the report of the Cincinnati Chamber of Commerce, before referred to, make the average increase of Pittsburgh, each decade, for fifty years, 122 per cent.

CHAPTER VII.

CLIMATE AND HEALTH.

Situated seven hundred and fifty feet above the level of the ocean, two hundred miles from its tide marshes, one hundred and eighty feet above the level of Lake Erie, and more than one hundred miles from its south-west coast, the position of Pittsburgh is peculiarly a healthy one. "Although nearly surrounded by hills more than four hundred feet in height, the valleys of the Allegheny and Ohio are open to free ventilation by the north-east and north-west winds. The summer winds from the south which visit other western cities, from low and paludal grounds, here descend upon the town from a terrace of four

hundred and fifty feet, after passing for a long distance over a well-drained, cultivated, broken and mountainous region.*

The average temperature during the winter months, taking the results of the observations for 1856, made by W. W. Wilson, Esq. is 21° above zero. During the spring months, 46° . During the summer months, 71° . During the autumn months, 51 .

The greatest heats usually occur in July, and the extreme cold in January. The winter does not generally set in with severity until the latter part of December; and in the average of seasons, the moderate temperatures of spring begin about the middle of February. Vegetation comes rapidly forward in the latter portion of March and April; but there is almost, invariably, frost about the tenth of May; fires are not usually dispensed with, however, until the first of June. The autumn is a delicious season in this vicinity. From the 1st of September, when usually the nights and mornings become slightly cool, until the last of November, a period of delightful weather prevails, with a clear serene atmosphere—which acquires that peculiar hazy appearance, about the middle of October, usual to that pleasant season known as the Indian summer. During the winter months the wind is generally from the north-west, and during rain storms, and damp weather, from the north-east. In the summer months the pleasant south-western winds prevail—changing to south-easterly currents during rains.

If it were not for the coal smoke, which is to strangers more objectionable than natives, there is not a pleasanter location in the United States. The scenery, which along the three rivers is highly romantic and picturesque in its character, is highly diversified by plain, mountain and valley; and the nature of the site upon which Pittsburgh is built, is such, that a walk of fifteen minutes from the business center of the city, will bring the pedestrian out upon high table ground, from two to three hundred feet above the level of the city, and clear of its smoke—affording the most picturesque sites for residences that could be wished—and of which large numbers of our inhabitants have already availed themselves. The smoke necessarily arising from its hundreds of manufactories, and the thousands of bushels of coal which are daily consumed by private families, pervades the atmosphere to a large extent—but this smoke, according to the report of the late Dr. Meyers, formerly physician to the Marine Hospital of this city, is, from the carbon, sulphur and iodine, contained in it, highly favorable to lung and cutaneous diseases.

The smoke is also *anti-miasmatic*, hence the few cases of remittent and intermittent fevers. "Strangers with weak lungs for a while find their lungs aggravated by the smoke; but nevertheless, asthmatic patients have found relief in breathing it. In this account, coal is our creditor; in another way, its abundance, cheapness and consequent general and profuse use by the poorest inhabitants, is undoubtedly a great cause of our superior healthfulness. The low fevers so prevalent in the large cities among the poor during a hard winter, and the ague and fever so common in the eastern counties where wood is

*Craig's History of Pittsburgh, p. 207.

scarce, are here in a measure prevented by the universal practice of keeping good coal fires late in the spring and early in the autumn, and indeed at all seasons when the weather is damp or inclement.*

Says the same authority we have just quoted—"Of all the great western towns, Pittsburgh is the furthest removed from the baneful exhalations of the swampy borders of the Mississippi, and accordingly enjoys a greater exemption from those diseases which during the summer and autumn months prevail even as high as Cincinnati.

* * * Dropsies, dysenteries, diarrhœas and cholera diseases, which are influenced by causes of a malarious origin, have never prevailed to any extent. * * * In comparison with eastern cities, there is much less pulmonary consumption, less scrofula, and less disease of the skin. There is scarcely any fever and ague, and no yellow fever. In comparison with western cities, including Cincinnati, there is less bilious fever, less fever and ague, less cholera infantum, and far less malignant cholera. We are the intermediate link of disease as well as of commerce. We have less hepatic disease than the West, and less pulmonic disease than the East. * * *

On the whole, with regard to the health of Pittsburgh, it may be said that no city in the Union is more healthy, and none better resists the malarious diseases, to which, during the autumn, the whole great valley is more or less subject. Indeed, of the adjacent country, including Western Pennsylvania, it may be said that no part of the United States is better suited to a European constitution, and that the greater part will bear no comparison with it in point of salubrity."

There is no city in the United States so healthy as Pittsburgh, and it is extremely problematical if there is a healthier or as healthy a city in the world.

The following tables, compiled from various authorities, and averaged from reports of several years, exhibit the health of Pittsburgh in comparison with other cities of the United States and Europe.

HEALTH OF PITTSBURGH.

In comparison with thirty-two American and European Cities.

Pittsburgh, average 5 years, including 1 year cholera, . . . 1 in 99

CITIES OF UNITED STATES.

Buffalo,	1 in 56
Philadelphia, average 5 years,	1 in 42
Charleston, average 2 years,	1 in 41
Boston, average 6 years,	1 in 41
Baltimore, average 5 years,	1 in 40
Cincinnati, Cist's average,	1 in 35
New York, average 6 years,	1 in 31
Chicago, average 8 years,	1 in 29
St. Louis, average 2 years,	1 in 24

* Dr. Wm. H. Denny, in Craig's History of Pittsburgh.

EUROPEAN CITIES.

Glasgow, Scotland,.....	1 in 44
Geneva, Switzerland,.....	1 in 43
London, England,.....	1 in 40
St. Petersburg, Russia,.....	1 in 37
Birmingham, England,.....	1 in 37
Leeds, England,.....	1 in 37
Leghorn, Italy,.....	1 in 35
Berlin, Prussia,.....	1 in 34
Paris, France,.....	1 in 33
Sheffield, England,.....	1 in 33
Lyons, France,.....	1 in 32
Barcelona, Spain,.....	1 in 32
Strasburgh, Germany,.....	1 in 32
Nice, Italy,.....	1 in 31
Palermo, Sicily,.....	1 in 31
Manchester, England,.....	1 in 30
Madrid, Spain,..	1 in 29
Naples, Italy,.....	1 in 28
Brussels, Belgium,.....	1 in 26
Rome, Italy,.....	1 in 24
Amsterdam, Holland,.....	1 in 24
Vienna, Austria,.....	1 in 23
Edinburgh, Scotland,.....	1 in 22

CHAPTER VIII.

MANUFACTURING ADVANTAGES.

By reference to the chapter of this volume treating of the geographical position of Pittsburgh, it will be observed that, in the very important requisite of natural and cheap channels for the distribution of productions, Pittsburgh is possessed of remarkable advantages. A similar reference to the exhibition of the Pittsburgh railway system will show, that in her artificial avenues for distribution there is an equal superiority of position. By that reference it will be observed that through her natural channels, she reaches from her own site, an extent of country embracing more than 1,000,000 square miles, over which she has unlimited powers for distributing her manufactures to the populous cities, growing towns, and thriving villages, which are profusely located throughout it; and that by her rail road system she possesses almost equal facilities for distribution.

After the power of distribution, the next point which attracts the attention of the observant person, is the position which Pittsburgh occupies for the easy reception of the staple materials of the country. By the Pennsylvania Central rail road, the Pennsylvania canal and branches, the Beaver canal, the Pittsburgh and Connellsville rail road, the Allegheny Valley rail road, and the Allegheny and Monongahela

rivers, Pittsburgh penetrates into the entire iron regions of Pennsylvania, in every direction.

By a report of the Convention of Iron Masters, published in 1850, it is stated that there were then 298 furnaces in the State, and 6 bloomeries—being a total of 304 : whose capacity was 550,959 tons. The same report remarks that there are but eight counties out of the sixty-two in the State, incapable of the production of iron. To this vast amount of material, Pittsburgh has full access ; and as already specified, great facilities for the transportation of the mineral from those furnaces to her rolling mills and foundries. In addition to the Pennsylvania ore deposits, which are but just beginning to be developed, she has equal facilities for receiving the products of the eastern Ohio iron furnaces, by transportation over the Pittsburgh, Ft. Wayne and Chicago, the Pittsburgh and Cleveland and the Pittsburgh and Steubenville rail roads, the Beaver and Erie canal, and the Ohio river. The Ohio river gives also cheap facilities for receiving the products of the Tennessee and Kentucky furnaces. The Allegheny river and the Allegheny Valley rail road penetrating one of the finest wooded districts in the country, give to Pittsburgh enviable facilities for cheap transportation from that district of such timber as the various manufactures in wood which have and may arise, demand ; while for foreign woods, the Pennsylvania canal, the Pennsylvania Central rail road, connecting with the eastern seaboard, and the Chesapeake and Ohio canal, connecting, by the Pittsburgh and Connellsville rail road to this city, with the south-eastern sea-coast, afford a fine transportation in such quantities as may be required. For wool, hemp, cotton, and in fact any of the staples of the various sections of the Union, the exhibit which is already given of our rivers and our railways, shows how readily they can be laid down in Pittsburgh, and how cheaply. After the facilities for the distribution of productions, and the reception of material, the next important quality in creating and continuing a great manufacturing city is fuel.

There is no point, combining as Pittsburgh does, the two first necessary advantages, that possesses the last in so valuable a shape. Other cities may find within reachable distance, coal of a good quality, and in large quantities ; yet the advantage remains with Pittsburgh, from the easy access which is had to it, and the consequent cheapness of the article. To manufacture in Pittsburgh there need be, from the location of the coal strata, and the advantageous sites for factories at this point, little or no cost for the transportation of fuel. The coal lies in the hills from one to two hundred feet above the bottom lands, on which the factories being located, the coal can be sent down by cars directly into the yards thereof. On the left bank of the Monongahela, the coal lies 200 feet above the level of the river bank, and is in a number of instances sent down into the mills and foundries in the manner described, in which cases the cost of fuel is only about eighty cents per ton, of 2,240 pounds. Where from any cause the factory is located in such a manner that advantage cannot be taken of these unparalleled facilities for fuel, the cost of coal delivered in the yards of the mills, foundries, &c. is only from \$1.31 to \$1.50 per ton ; and contracts have been made at \$1.16 and \$1.20. There is a large extent of ground, suitable for all descriptions of manufactories, where, as

previously stated, coal can be sent down into the yards at a cost not above \$1 per ton, of twenty-eight bushels, and down to eighty cents. In any article which requires for its manufacture large quantities of fuel, the great advantage gained by this easy obtainance of fuel, and the almost nominal cost per bushel or ton, is decisive as to the superiority of this point for its production.

This advantage of fuel, without the ability to distribute widely and cheaply, and to receive raw materials from a distance easily and cheaply, would of course be in itself, isolated from the other two, of little or no value; nor would they, without the other, be of the same force or value; but such a combination of these three as exists at Pittsburgh, is, beyond dispute, unsurpassed—perhaps unparalleled.

The quality of the coal of the Pittsburgh seam is so well understood by all manufacturers, that descriptions of its adaptations would be almost superfluous.

The value of coal as a fuel, or as a generator of steam, depends very essentially upon the quantity of fixed carbon which it contains. As a general rule, in the manufacture of iron, the quantity of coal is necessarily augmented in the same ratio that the yield of carbon is diminished. The same is the case where the manufacture of glass is concerned, and in fact wherever heat is a requisite in manufacturing.

The advantage which the possession of this quality of coal gives to Pittsburgh, does not stop at the simple possession; but continues in the additional cost which the necessity for that coal, obtainable only from Pittsburgh, entails upon the manufacturers at points below.

The fuel which costs the Pittsburgh manufacturer from 80 cents to \$1.50 per ton of 2,240 lbs., or 28 bushels, costs the manufacturer in the down river towns and cities from \$2.80 to \$3.50 for the same quantity; being a difference, taking the average, of \$2 per ton.

The advantage which this gives to Pittsburgh in the carrying on of a rolling mill, for instance, is best shown by the following calculations:

A rolling mill of 20 puddling and 11 heating furnaces, and 25 nail machines, will consume, running double turn, about 850,000 bushels or 34,000 tons of coal in a year; running single turn, about 525,000 bushels, or 20,000 tons a year. The additional cost to a rolling mill, running double turn; in Cincinnati, Louisville, or St. Louis, would be, at \$2 a ton advance on the Pittsburgh cost, \$68,000. A mill of the capacity named will turn out about 14,000 tons of manufactured iron; the difference in price of fuel creating an advantage of nearly \$5 per ton to the Pittsburgh manufacturer. The same advantage arising from fuel, will be the result in all manufactures where it is a prominent requisite.

This estimated advantage is only, as stated, in years favorable for the transportation of coal from Pittsburgh to the ports below. When dry summers and severe winter interrupt the navigation of the Ohio, as was the case in 1855 and 1856, manufacturers below must expect to pay much heavier rates, and then the advantage to Pittsburgh manufacturers is proportionably greater. During the coal famine of the fall and winter of 1856 and 1857, those manufacturers whose stocks ran out were obliged to pay from 30 cents to 50 cents per bushel for coal, or stop their works. Where contracts requiring fulfillment in a specified time were completing in their workshops, the price was

necessarily given ; in other cases the works were thrown idle ; in either case, at a serious loss. In the one instance the articles were manufactured at a cost, taking the lowest compulsory price, over the Pittsburgh cost equal to \$15.62 on the ton of pig iron. In the other instance, a loss equal, each month, to 10 per cent. in time, and $\frac{1}{2}$ per cent. upon the interest of the capital, was sustained for whatever period the works were idle from the want of fuel. That this state of affairs will not occur frequently there is no guarantee, and the only preventive adoptable by the down river manufacturers, is to stock, when it is plenty, sufficient coal to last a year. This would in itself require such an outlay of capital, that the cure would be nearly as troublesome as the disease. These contingencies of fuel, the manufacturer in Pittsburgh is free from ; he can have his coal in the driest summer, or the severest winter, at the same cost as in the favorable seasons.

Loss from want of metal is also a result which the down river manufacturer is liable to, from the same cause which enhances the price of his fuel, and renders his supply of it uncertain.

An occurrence of this character did, in the winter of 1856-'7, cripple a large down river manufacturing community—which, although supplied with fuel, was destitute of metal. In that particular, as well as in the supply of fuel, Pittsburgh is independent of the variations of the seasons.

Following those great essentials, reception of material, distribution of products, and cheapness of fuel, comes cheapness and eligibility of sites for manufactories.

In this essential Pittsburgh presents, from the low price of real estate, as shown in the chapter treating thereof, great advantages. Locations for building, combining the requisites of space, water, transportation facilities, and the best of those advantages already mentioned for obtaining fuel, are to be had in every direction around the two cities and the suburbs, at very low prices, and on accommodating terms. Closely connected with this advantage are the low rates for warehouse rents, in comparison with other cities. In Cincinnati, for instance, the rent of a warehouse on the levee, twenty-five feet by two hundred, would be about \$3,000. In Pittsburgh, the same sized house rents from \$1,000 to \$1,200. In the same proportions are the rents for dwelling houses. It is fair to say that the difference in dwelling house and warehouse rents is \$3,000 a year in favor of the Pittsburgh manufacturer, over one located in one of the larger cities below this point, and correspondingly in other sections of the Union.

Yet another advantage is the cheapness with which workmen can live in this city in comparison with other points. The details of the cost of living to the mechanic, the merchant and the laborer, we leave to their proper chapter ; to which a reference will show that in the expense of living, fuel costs but about one-third as much as at Cincinnati, Louisville, or St. Louis. Rents are only one-half as much. A majority of the articles for food are one-third less than at those points ; while all articles of wearing apparel, or the material for them, can be purchased as cheaply as in Philadelphia or New York.

The fact that all species of labor in our manufactories is from 10 to 20 per cent. less than at manufacturing points below—and that

workmen, in most instances, prefer to labor here at less prices, is conclusive as to the difference in household expenses.

In this consideration the article of fuel claims, again, prominence; not so much from its price in ordinary seasons, although then one dollar will go as far as three elsewhere; but, from extraordinary seasons, like that of the fall and winter of 1856-'57, when a fuel famine prevailed in all the great towns of the Ohio valley, at New Orleans and other points upon the Mississippi. While at Cincinnati, Louisville, &c. coal was commanding fifty cents per bushel, and for a time none to be had, even at that rate, at Pittsburgh the price was unchanged, and the supply plenty at the usual rates for supplying households, from five and a half to six cents. Human knowledge or foresight gives no data as to when a dry summer or a severe winter may be expected; and to the laboring classes, averaging one dollar per day, or the mechanical classes, averaging two dollars per day, a location where the comfort of their firesides is superior to the variations of the seasons, is of great importance. While to the mercantile, manufacturing, and more remunerative professions of all classes, the increased cost of fuel from a severe winter is a matter of comparative indifference; yet to the laboring and mechanical classes, who are unable to lay in large supplies, but must replenish from time to time, their winter's fuel, such contingencies of fuel as in 1856-'57 made demands upon their purses, are ones to be avoided; and that is why, in the consideration of cost of living to workmen in Pittsburgh, the price and uninterrupted supply of fuel possesses great interest and importance.

In intimate connexion with the advantages belonging to Pittsburgh, from cheapness of living, is the salubrity of the location. The table of mortality given in another chapter treating upon this subject, is conclusive of the superiority on this point, of this community; and without doubt the great health shown by those tables to be possessed by this manufacturing population, weighs heavily in the summing up of the advantages of this location as a manufacturing point. Not only to the workman, is the health of his family and of himself of importance, but to the manufacturer, as well. The loss of income caused by three or four weeks sickness suffered by the workman, whose recompense for twelve hours' severe toil is from one to two dollars—or by the increased demands upon it from frequent illness in his family, is seriously felt, in the consequent deprivation of comforts, which the money lost from lost time, and necessarily expended in drugs and doctors' bills, would purchase. The lessening of such misfortunes is an object in the selection of his place of toil. To the manufacturer, whose profits often depend upon the skilled and unbroken labor of a set of hands, the loss from the forced substitution of green hands for competent ones, or the ragged running of his machinery, from the forced depletion of his working force by illness, is also, especially if occurring when his order books are full, a great injury, not only to his profits, but to the smooth working of his business. To the employer, therefore, as well as to the employee, is the healthfulness of a location a subject of careful consideration; and there is no point, as statistics show, in the United States, possessed of all or any of the requisites

for supporting a manufacturing community, which can in any way compare with Pittsburgh, for salubrity.

From this brief sketch of some of the manufacturing advantages of Pittsburgh, it is apparent that there are three advantages of cheapness—those of fuel, material, and living; three of position—those of reception, distribution, and manufacturing sites; three of health—unbroken labor, lessened expenses, and increased income.

The cost of manufacturing, from these advantages and many others of a minor character, is so lessened in Pittsburgh, that it may safely be called the cheapest point of the United States for the manufacturing of most articles, especially those in which iron, wood, cotton, wool and fuel are important components.

A writer in "Rees' Encyclopedia," at an early date, in mentioning the advantage of this location, says—"The cotton of the Ohio and Mississippi, the hemp of Kentucky, the ore of the vast iron district, near Pittsburgh, the abundance of material for glass, will undoubtedly lead the people of that place to rival Manchester in cotton goods, Birmingham in iron, Russia in hemp, and Germany in glass." Two of these specified rivalships are accomplished.

Among the powers used in manufacturing, that of steam is pre-eminent, and its advantage being in proportion to its cost, its value is great or small over other kinds of power according to its cheapness. At Pittsburgh so cheap is the article of fuel, that steam becomes the prevalent power. Its cost, at this point, is given in an estimate in the Report of the United States Engineers upon the establishment of a National Foundry, in 1823, as follows:

The total cost of *four engines*, working 313 days, would be—

160 bushels of coal a day,....at 3 cts.	\$ 4.80.	or \$1,502.40
Oil, per day,.....	40, "	125.20
Packing four times each, 16 times,..at	1.75, "	28.00
4 Engineers,.....at 400.00,	"	1,600.00
		<hr/>
		\$3,255.60

Or equal to \$813.90 for each engine.

The same report, comparing steam and water power, states that "there were employed in Pittsburgh at that date, fourteen engines from twenty to eighty horse power, whose powers exceeded that of the whole extent of the Muskingum, with a head of eight feet."

The cost of material for the erection of the various species of manufactures is so low at this point, that a desirable advantage is gained here from the reduced cost of building. All such component parts of manufactories, as wood, brick, glass and iron, are cheap, and labor is reasonable, in fact low in comparison with some other points.

Lumber is worth from \$15 to \$30 per thousand feet; shingles, \$3 per thousand; glass, 12 by 20, sixty lights to the 100 feet, \$6.50 per 100 feet; bricks, \$4 per thousand; castings are worth from \$50 to \$60 per ton; forged iron work about \$140 per ton; lime, 16 cents per bushel; white lead, \$2.50 per keg of 25 lbs.; planed flooring, \$22 per thousand; sash averages $7\frac{1}{2}$ cents a light; doors, \$3 each; tin $\frac{1}{3}$ X, \$12 per box; sheet copper, 36 cents per lb.; brass castings, $37\frac{1}{2}$ cents per lb.; bar iron, \$65 per ton; sheet iron, \$130 per ton; nails, \$3 to \$6

a keg of 100 lbs.; spikes, \$4 to \$5 a keg of 100 lbs.; slating, with copper nails, \$10 to \$11 per square of ten feet.

The chapter treating of mechanics' wages furnishes data for estimates of the expense for mechanical and manual labor in erecting buildings in this vicinity, and the capitalist or manufacturer can, from those and the data already given, at once discern the extent of the advantage gained in Pittsburgh by facilities and cheapness for erection of buildings.

There are in Pittsburgh abundant openings for manufacturing enterprises, which will not fail to be highly remunerative if properly conducted. There is business and demand for more manufactories—in iron, glass, wood, cotton, wool, and in fact every staple of the country; and for the capitalist and mechanic, there is no point in the Union where skill and money can be more profitably employed than at Pittsburgh.

CHAPTER IX.

COAL.

The extent of the bituminous coal field by which Pittsburgh is surrounded in her own State, and from which she derives revenue, is 15,000 square miles—being equal to 8,600,000 acres. The amount of coal contained in that area, it is extremely difficult to estimate, because of the variations of strata, and want of reliable information as to the number of workable coal veins to be found in the same depth from the surface reached by the English and French mines. The upper, or Pittsburgh seam, would, estimating it at an average of eight feet in thickness, contain in that area, 1,498,464,000,000 bushels, or 53,516,430,000 tons of coal—the value of which, at an average rate of five cents per bushel, would be worth \$74,923,200,000, or more than the gold production of California, at its present rate of \$24,000,000 annually, would amount to in 3,000 years.

The tract of ground containing such a value of mineral, was purchased by the Proprietaries, as the Penn family and their coadjutors were styled, in 1768 and 1784—only seventy-three years ago, *for the sum of \$10,000.*

In Pittsburgh, coal appears to have been used as early as 1784. and was then mined from the hill immediately opposite the city, where the Penns granted the privilege at £30 a lot, "to dig coal as far in as the perpendicular line falling from the summit of the hill."

It is from the four pools of the Monongahela river slackwater, and from the Youghiogheny river, that the large proportion of the coal boats start upon their voyage.

The following figures show the quantity which yearly leaves those rivers.

**Coal for home and export trade, shipped from the Monongahela
Blackwater, for 12 years.**

Year.	Boats [exported.] Bushels.	Flats [home.] Bushels.	Total Bushels.
1845,.....	2,660,340	1,944,845	4,605,185
1846,.....	5,236,436	2,542,475	7,778,911
1847,.....	6,513,997	3,131,130	9,645,127
1848,.....	6,496,057	3,223,304	9,819,361
1849,.....	6,329,907	3,378,907	9,708,814
1850,.....	7,825,042	4,472,925	12,297,967
1851,.....	7,645,200	4,876,226	12,321,228
1852,.....	9,903,921	4,726,920	14,630,841
1853,.....	10,800,632	4,915,735	15,716,367
1854,.....	13,666,491	3,665,455	17,331,946
1855,.....	16,300,159	5,933,850	22,234,009
1856,.....	5,174,485	3,409,250	8,584,095
	<hr/> 98,642,667	<hr/> 46,231,022	<hr/> 144,862,689 or 4,173,846 tons.

VALUE OF TWELVE YEARS.

Exported,.....	\$9,861,266.70
Home,.....	2,311,251.10
Total,.....	<hr/> <u>\$12,175,517.80</u>

The foregoing figures exhibit but one channel of the coal trade. There are, from the first dam on the Monongahela river to the junction of the Chartiers Creek with the Ohio, a number of coal rail roads, which furnish coal for home trade and for exportation.

The production of these for the year 1855, was about 3,000,000 bushels, the value of which may be summed up thus:

For ports below,.....	2,000,000 bushels,....	\$250,000
“ home consumption,.....	1,000,000 “	50,000

There are in and around the city limits, about 150 coal works, whose yield is consumed at home, and conveyed to the purchaser by teams. The yield of these pits for 1856, was, as near as we can learn, 9,385,000 bushels—having a value of \$556,175.

Another avenue by which the exportation of coals and home consumption is estimated, is the Pennsylvania Central Rail Road. On the road was carried:

	Home.		East.	
	Tons.	Bushels.	Tons.	Bushels.
1853,.....	25,000	525,000	40,000	900,000
1854,.....	70,000	1,750,000	65,000	1,625,000
1855,.....	100,000	2,500,000	110,000	2,750,000
1856,.....	110,407	2,760,169	135,000	3,372,000

The Pittsburgh and Connelsville Rail Road is also bringing from the Youghiogheny region quantities of coal, but its tonnage did not increase the business of the past year, as the road has only begun to carry coal since the commencement of 1857.

The Allegheny Valley Rail Road is likewise swelling the amount of coal delivered in this city; and the coal carried over this road in

Coal.

1856, amounted to 14,522 tons, or 473,050 bushels—all of which was for home consumption.

The value of the coal trade, in the exportation by the river, and the value of the home consumption, so near as we can discover, will stand thus:

HOME CONSUMPTION.

Consumed in Dwellings, Stores and Public Buildings, 1856,	10,855,000
Factories of all descriptions, and Steamboats,	22,000,000
Three Gas Works,	350,000
Two Water Works,	200,000
	<hr/>
Total bushels,	33,405,000

EXPORTED.

By Ohio River, 1855,	16,300,159
" Pennsylvania Rail Road, 1856,	3,372,000
" Pennsylvania Canal, 1856,	560,000
" Cleveland and Pittsburgh R. R. 1856,	140,000
	<hr/>
	20,372,159
	<hr/>
	53,782,159

Value of Home Trade,	\$1,670,250.00
" Export Trade,	3,000,239.72
	<hr/>
Total,	\$4,670,489.75

In the *mining* of this there are employed 1,920 men and boys, whose wages amount to \$1,075,643.18. Besides the hands employed in mining, there are probably 400 more hands engaged in other labors about the pits. The cost of mining coal is two cents a bushel. The estimated cost of coal in boats, ready for running, is four and a half cents per bushel.

To run a pair of boats to New Orleans, requires the outlay and expense of \$3,841.00, or equal to 10 cents per bushel. To run to ports above the mouth of the Ohio, the average cost is about one-half of the expense of the New Orleans trip. The average price in New Orleans of Pittsburgh coal is fifty cents a barrel, of two and a half bushels, or twenty cents a bushel; in ports above the mouth of the Ohio, twelve and a half cents; at St. Louis, the average price is eighteen cents.

Having given, so far as information could be gathered, the value of the coal trade at the commencement of 1857, and of such of the details as could be reliably obtained, we devote a short space to an exhibit of the growth of the Pittsburgh coal business:

	Bushels.	Exported.	Value.
In 1828, it was estimated at.....	1,000,000		\$ 50,000.00
In 1833, it was returned at*.....	6,165,480		308,274.00
In 1837, it was estimated at†.....	11,304,000	2,515,000	753,361.00
In 1842, it was estimated at‡.....	12,760,000	3,760,000	900,200.00
In 1846, it was announced at§.....	19,000,000	6,000,000	1,370,000.00
In 1856, it is¶.....	53,782,159	20,377,159	4,670,489.75
In 1857, it is estimated that it will be, if the Ohio river is navigable, at¶.....	61,730,358	26,480,350	6,336,720.75

From estimates for the year's business, made in the various quarters, and by the various companies, the figures at the close of 1857, if the navigation is good in the Ohio during the spring and in the fall, will stand thus:

Home consumption, 1856,	33,405,000
Increased by new manufactories erecting, and in- creased capacity in old ones, &c.....	1,845,000
	<hr/> 35,250,000

EXPORTS.

Ohio River,	19,560,190
Cleveland and Pittsburgh Rail Road,	2,500,000
Pennsylvania Central Rail Road,	3,860,168
Pennsylvania Canal,	560,000

Total bushels,	61,730,358
Value of Home Trade,	\$1,566,500.00
Value of Export Trade,	4,774,220.75
	<hr/> \$6,336,720.75

CHAPTER X.

BOAT BUILDING IN PITTSBURGH.

The position that Pittsburgh occupies as the point where was constructed, and whence departed the first steamboat that navigated the western waters, gives her a historical prominence, in connection with the invention of steamboats, and has enabled her to attain and preserve an equal prominence in the boat building business of the West.

From the date of 1756 up to 1777, there is nothing necessary to record, showing progress in the carrying trade of the western rivers, as connected with Pittsburgh.

* Journal of the Senate of Pennsylvania, 1833, p. 462.

† Harris' Directory, and Lyford's Western Directory.

‡ Geography of Pennsylvania, Trego.

§ Governor Shunk's Message, January 7, 1846.

¶ Compiler "Pittsburgh as it Is."

In 1777, on the 23d of February, fourteen carpenters and sawyers arrived at Pittsburgh for the purpose of boat building, and immediately set about constructing batteaux, of which they built thirty.

The following account, which it is proper here to quote, of an attempt at intercourse with New Orleans, which was at this time made, we find in "Hall's Notes on the Western States," published in 1838.

In 1776, Messrs. Gibson and Linn, the grandfather of Dr. Linn, now a Senator in Congress from Missouri, descended by water from Pittsburgh to New Orleans, to procure military stores for the troops stationed at the former place. They completely succeeded in their hazardous enterprise, and brought back a cargo of 186 kegs of gunpowder. On reaching the falls of the Ohio on their return, in the spring of 1777, they were obliged to unload their boats, and carry the cargo round the rapids, each of their men carrying three kegs at a time on his back. The powder was delivered at Wheeling, and afterwards transported to Fort Pitt.

In July of the year 1794, on the 22d of April, of which year Pittsburgh was incorporated as a borough, a line of mail boats was established to run from Wheeling to Limetown and back, once in every two weeks, the mails being carried from Wheeling to Pittsburgh and back on horseback. These boats "were twenty-four feet long, built like a whale boat, and steered with a rudder. They were manned by a steersman and four oarsmen to each boat. The men had each a musket and a supply of ammunition, all of which were snugly secured from the weather, in boxes alongside their seats."

The same year there was started a line of boats from Cincinnati and Pittsburgh, in relation to which we quote from an advertisement in "The Centinel of the North-western Territory," published at Cincinnati, under date of January 11, 1794. The advertisement states: "Two boats for the present will start from *Cincinnati* for *Pittsburgh*, and return to *Cincinnati* in the following manner, viz: First boat will leave Cincinnati this morning at eight o'clock, and return to Cincinnati, so as to be ready to sail again in four weeks. The second boat will leave Cincinnati on Saturday, the 30th inst., and return to Cincinnati in four weeks as above. And so regularly each boat performing the voyage to and from Cincinnati, Pittsburgh, *once in every four weeks.*"

The next event in boat building here, which shows the progress of this point, was the construction of the armed galleys, President Adams and Senator Ross.

In relation to these, we quote from an extract of a letter from Major Craig, dated May, 1798, which is printed in Craig's History of Pittsburgh:

"On the 19th instant, the galley *President Adams* was launched, and is now at anchor in the Allegheny. She will be completely equipped in a few days, and will, I am confident, be as fine a vessel of her burden and construction as the United States possesses.

"The keel of the second galley is laid, and other materials prepared."

Of this second galley, a letter quoted in the same work above referred to, remarks: "The galley Senator Ross has been launched.

and is now rigged, and will, in a few days, be fully equipped for the Mississippi.

"She is anchored in the Monongahela, abreast of the town. She is certainly a fine piece of naval architecture, and one which will far exceed anything which the Spaniards can show on the Mississippi."

These national vessels were the first sea-going boats which were constructed on the Ohio—although a brig of 120 tons burden, called the St. Clair, was built at Marietta, by Commodore Preble, in 1798–99.

From 1802 to 1805 the business of building sea-going vessels seems to have been flourishing here, as, in a short period, there were constructed the ships Pittsburgh, Louisiana, General Butler and Western Trader; the brigs Nanina, Dean and Black Warrior; schooners Amity, Allegheny and Conquest. The ship Monongahela Farmer, and brig Ann Jean, were built in the same period at Elizabethtown, on the Monongahela river.

The year 1811 was an important one in the history of Pittsburgh. In that year was built the first steamboat for the navigation of the western waters. The construction of this boat was the first step to the fulfillment of a prediction made by John Fitch, of Philadelphia, who was probably the first inventor of steamboats; he having conceived the design in 1785, and carried it into execution in 1788. He died in the West in 1799, and was buried near the Ohio. Previous to leaving the East, he wrote three volumes, which he deposited in manuscript, sealed up, in the Philadelphia Library, to be opened thirty years after his death. These volumes were opened in 1833, and in them he confidently predicts the success of his plan. He prophesies that, in less than a century, the western rivers will be swarming with steamboats, and expresses a desire to be buried on the banks of the Ohio, "where the music of the steam engine may soothe his spirit, and the song of the boatmen enliven the stillness of his resting-place."

The boat whose steam engine was the first to soothe the spirit of "*poor John Fitch*," was the "*New Orleans*." This boat, as before observed, was built at Pittsburgh in 1811. She was 138 feet keel, and between 300 and 400 tons burden; her cabin was in the hold, and she had port holes; also a bowsprit eight feet in length, in ocean steamer style, which was painted sky blue. She was owned by Messrs. Fulton, Livingston and Rosewalt, and her construction was superintended by the latter gentleman. Her cost was \$40,000. She was launched in March, and descended the river to Natchez in December, at which point she took in her first freight and passengers, and from thence proceeded to New Orleans, on the 24th of the same month. She continued to ply between New Orleans and Natchez until 1814, making the round trip in ten days, conveying passengers at the rate of \$25 up and \$18 down. On her first year's business, she cleared \$20,000 *net*. In the winter of 1814, she was snagged and lost near Baton Rouge.

As late as 1816, the practicability of the navigation of the Ohio by steamboats was doubted. A writer in the *Western Monthly Magazine* states that in 1816, he formed one of a company of gentlemen who, watching the long continued efforts of a stern-wheel boat to

ascend the Horsetail ripple, five miles below Pittsburgh, came to the unanimous conclusion that such "*a contrivance*" might do for the Mississippi as high as Natchez, but that "We of the Ohio must wait for some more happy century of inventions."

Recurring back to 1810, we find in "Cramer's Magazine Almanack" for that year, the following:

"A company has been formed for the purpose of navigating the river Ohio, in large boats, to be propelled by the power of steam engines. The boat now on the stocks is 138 feet keel, and calculated for a freight as well as a passage boat between Pittsburgh and the falls of the Ohio."

The boat here alluded to, was the one afterwards known as the "New Orleans." The subsequent career of this boat we have mentioned. The formation of companies for the construction of boats at Pittsburgh, for particular rivers, appears to have been the popular shape which this branch of business took in 1810, 1811, and 1812. In the publications of the day, several such companies are announced. Cramer's Magazine Almanack mentions in 1811, the "Mississippi Steam Boat Company," and that "another company has been formed for the Ohio river."

In the first years of boat building, the progress was slow, and many difficulties impeded the rapid advance of steam navigation. We have given some of the particulars connected with the building of the earlier boats, as illustrative of the progress and the spirit of the business.

From 1817, when the success of steam boat navigation on the western rivers was finally conceded by the public—convinced by the trips of the Washington, from Louisville to New Orleans and back in forty-five days, boat building rapidly increased.

In 1818, there were employed on the Ohio and Mississippi rivers twenty-two steamboats, averaging nearly 230 tons each. In 1818, there were building at different locations on the Ohio, twenty-three boats, of which number,

9	were constructing at Pittsburgh,
5	" " " Cincinnati,
5	" " " Louisville,
2	" " " Wheeling,
1	was " " Corydon,
1	" " " Limestone.

In 1836, the construction of boats greatly increased in that year; 61 boats were built in all.

There was constructed at Pittsburgh, from 1811 to 1836, 252 steamboats; of these, one was built in 1811, one in 1812, three in 1814, one in 1816, five in 1817, seven in 1818, eight in 1819, two in 1822, five in 1823, three in 1824, nine in 1825, sixteen in 1826, seven in 1827, sixteen in 1828, twenty-five in 1829, twelve in 1830, seventeen in 1831, eighteen in 1832, twelve in 1833, ten in 1834, nineteen in 1835, and sixty-one in 1836.

In 1846, there were built here sixty-three steamboats, besides keel-boats and barges. From 1852 to 1856, there were constructed at this point, 362 steamboats.

Of 177 steamboats, barges, keel-boats, &c. constructed on the Ohio river, in 1856, there were built at Pittsburgh,

		Tonnage.
Steamers,	59	11,424 60-95ths.
Keels,	15	664 54 "
Barges,	14	1,417 23 "
Flatboats,	20	553 8 "
Total,	108	14,059 45-95ths.

		Tonnage.
At Cincinnati, Steamers,	30	8,281 53-95ths.
" " Barges,	2	259 73 "
Total,	32	8,541 26-95ths.

At New Albany, Steamers,	18
" Louisville, "	11
" Jeffersonville, "	5
" Madison, "	2
" Paducah, "	1
Total,	37

On account of the great abundance of the different kinds of timber, the cheapness of iron, of labor, of paint, and of all other materials used in the construction of steamboats, they can be built at a less cost at Pittsburgh than in any western port, and consequently there are built and fitted out here more steamers than at any three or four other cities of the West.

The leading city, for nearly fifty years, engaged in the construction of boats for the western waters, there is a vast fund of practical knowledge, accumulated by those many years experience, existing in the minds of the contractors and mechanics employed in that branch of trade in Pittsburgh; and such boats as the Buckeye State, the Pennsylvania, the City of Memphis, and a score of others similar, attest the skill with which that knowledge is brought to bear in the production of boats unequalled on the western waters for speed, beauty, comfort, convenience and cheapness.

It is estimated, taking the close of the first quarter as data, that, if the water is favorable in the Ohio this year, by the close of 1857, there will have been completed at this port eighty-four steamboats, of a value of \$1,680,000. There were enrolled, up to the 1st of April of this year, thirteen steamers, of a tonnage of 2,814 tons, and there were then partially finished and not yet enrolled, eight more. For the same quarter there were enrolled, eighteen keel-boats and barges, having a tonnage of 1,092 tons; also two schooners of eighty-eight tons each, making the entire enrollment of the quarter thirty-three boats, having a tonnage of 4,082 tons, which is in reality much greater—in fact double the amount of the Custom House admeasurement; or, 8,164 tons. The law under which boats are measured having been enacted in 1793, before a western steamboat had been

constructed, it did not contemplate their peculiar build in the measurement therein prescribed.

Besides the building of steamboats, there is a heavy business carried on in the construction of barges, keel-boats and coal flats. There is no reliable source from which the number of these can be estimated. An examination of the yearly reports of the Monongahela Navigation Company, shows that the requirements of that trade alone have consumed in twelve years, over \$2,753,608 of flat boats, or \$221,134 a year; the average for the last three years is \$223,080. In 1855, the consumption was \$311,088, and would have been equally as large in 1856, if the continued low water had not prevented the running of coal. In 1857, it is estimated the consumption of flat or coal boats in the pools of the slackwater, will be about \$388,388 worth for the running of coal. The amount of keels built yearly, or in an average of years, there is no data to estimate from, beyond the requirements of the coal-towing trade—that requires about \$30,000 worth of barges yearly, as the books of the Custom House exhibit.

The following table shows the comparative state of the boat building trade for the years specified :

Years.	Steam-boats.	Barges, Keels, &c.	Total.	Tonnage Keels.	Tonnage Boats.	Total Value.
1837.....	63	...	.....	.....	.....	\$ 985,000
1846.....	63	...	.....	.....	11,084	1,260,000
1852.....	70	32	102	.....	.....	1,419,000*
1853.....	78	35	113	.....	21,007	1,581,000
1854.....	83	23	106	.....	14,692	1,673,800
1855.....	72	50	122	4,741	15,360	1,470,000
1856.....	59	49	108	2,230	11,424	1,207,400

The tonnage in the above table should be double that registered at Custom House, from the fact that when the law for the admeasurement of shipping was passed by Congress, there was no such thing as a western steamboat, and the peculiar construction of the boats now running upon the western waters, was not considered in the rule laid down for obtaining the tonnage of shipping.

On the first of January, 1855, it appeared from a careful revision of the enrollment books at the Custom House of Pittsburgh, by order of the Secretary of the Treasury, that there were owned at Pittsburgh at that date, 153 steamboats and 54 barges, all of which were in good running condition,* and that the entire live tonnage was, Custom House admeasurement, 43,772 tons; or, in reality about 86,000 tons.

Taking the construction of 1853, 1854, 1855, 1856, and 1857 as estimated, the average yearly number of steamboats constructed would be seventy-six. The average of keels, barges, &c. would be forty-eight. The consumption of coal boats is about \$388,000. This average would give the business of boat building in Pittsburgh, at the following figures:

Average yearly construction of Steamboats,.....	\$1,520,000
“ “ “ “ Keels, Barges, &c....	26,800
“ “ consumption “ Coal Boats,	388,000

\$1,934,800

This aggregate amount could be swelled very justly to considerable over \$2,000,000 from the occasional construction of descriptions of boats outside of those specified, as for instance the two schooners enrolled in the first quarter of 1857, enumerated before.

CHAPTER XIV.

LUMBER.

In 1807 there were in Pittsburgh four lumber yards.

In 1812 the quantity of lumber brought down the Allegheny river and inspected at Pittsburgh, was 7,000,000 feet—worth about \$70,000.

In 1817 we find the following record in Cramer's Almanack, of the timber trade of the Allegheny river :

"On Brokenstraw creek, Warren county, Pennsylvania, are fifteen saw mills, some of which use eleven saws. They cut on an average 3,000 feet of boards a day, and can be worked eight months in the year, making about 9,450,000 feet annually, worth in Pittsburgh, \$100,000. On the Conewango, which rises in the State of New York, and empties into the Allegheny river above Brokenstraw, in the same county, our informant assures us that more than twice that quantity of lumber is sawed."

This account would make the lumber business of the Allegheny river then, and consequently of Pittsburgh, as at that period the product of all those mills was floated to this city, worth \$300,000, and the number of mills about forty-five, producing 28,350,000 feet of lumber.

In 1831 the amount annually brought down the Ohio is estimated in "Peck's Guide" at 30,000,000 feet, worth in the neighborhood of \$300,000.

The increased demand consequent upon the rapid progress of the population of the Ohio Valley and the manufactures of Pittsburgh, rapidly swelled the amount of lumber annually cut on the Allegheny and its tributaries, until the amount of lumber now run from that section and sawed upon their banks, has increased to an immense amount. About one-half of the entire "cut" of the mills is consumed at Pittsburgh; the remaining half is taken to ports below and sold.

There are now twenty Lumber Yards in Pittsburgh, the amount of lumber piled by the proprietors of which was, taking the "run" of 1855—in this branch of business the low water curtailing largely the extent of their operations in 1856—34,000,000 feet, of which about 4,500,000 was clear stuff. The same firms purchased in same years 18,500,000 shingles. The value of which lumber was as follows :

Value of Lumber at River,.....	\$309,000	At Yards,.....	\$645,000
" Shingles " 	46,750	" 	55,500

There are also in the city eight Sash Factories, in which are manufactured all descriptions of doors and window sash, of which articles large quantities are shipped to the West, at a rate averaging $7\frac{1}{2}$ cents a light for sash, and from \$2 to \$3 for doors.

These factories pile from purchases at the Allegheny river
 2,832,000 feet of lumber, worth\$31,152
 “ employ eighty hands, whose wages amount to..... 33,280
 “ turn out manufactures to amount of..... 78,000
 The machinery employed in the business absorbs a capital of..... 6,642

There are also nine Planing Mills, whose proprietors pile from the Allegheny river 19,000,000 feet of lumber, worth.....\$208,000

They employ 120 hands, whose wages are..... 76,584
 “ produce 12,220,000 feet of planed flooring worth 268,800
 “ sell 6,680,000 feet of lumber, worth..... 102,000
 “ have in buildings, machinery, &c. capital to amount of..... 104,000
 “ consume 30,000 bushels of coal a year..... 1,500
 “ keep twelve steam engines running.

The planed flooring of these mills are shipped to a heavy extent to nearly all sections of the West, besides supplying the home trade, at the rate of \$22 per thousand feet, planed, grooved and tongued.

There are also eight Saw Mills, employing seventy men, whose yearly wages amount to.....\$26,250

They consume 50,000 bushels of coal..... 2,500

The capital in buildings is \$24,800

“ “ machinery, 35,000

These mills keep nine steam engines running, and consume 1,680,000 cubic feet of timber, worth...\$134,400

Producing 13,800,000 feet of boards, “ ... 227,000

“ 5,800,000 laths, “ ... 14,500

The various Cabinet Shops of the city also pile 2,500,000 feet of boards of the various species of wood used by them worth \$50,000. The lumber business of Pittsburgh would therefore sum up thus :

	Feet of Lumber.	Lath and Shingles.	Value.
Cabinet Shops,.....	2,500,000		\$ 50,000
Saw Mills,.....	13,800,000		227,000
“ “		5,800,000	14,500
Planing Mills,.....	19,000,000		370,800
Sash Factories,.....	2,832,000		78,000
Lumber Yards,.....	34,500,000		645,000
“ “		18,000,000	55,500
			<hr/> \$1,440,800

The foregoing figures show the value of the Allegheny lumber trade so far as the immediate supply of lumber for this market is concerned; beyond that there is an amount of lumber which is equal to one-half—some parties conversant with the subject say three-fourths, of the whole “cut” of the Allegheny region goes to down river markets. Assuming, for the sake of being within the limits, as has been the endeavor in all values given in this volume, that the quantity is one-half, there is an amount of lumber equal to that given for the trade of Pittsburgh, which is run from the Allegheny and its tributaries to the principal ports below—say 72,632,000 feet, worth \$1,790,800.

This production comes ultimately to Pittsburgh, in shape of payment for supplies for the various mills.

The entire value then of the Allegheny lumber trade is :

Amount sold at Pittsburgh.....	\$1,440,800
“ “ “ down river ports,.....	1,790,800
	<hr/>
	\$3,241,600

The price of boards is almost yearly on the increase. In 1832 the best quality of pine boards were sold in this market for \$4,50 a thousand at the river; and not more than ten years ago they were selling at \$5 per thousand. Pine boards are now worth, by the raft, in the water at the Allegheny wharf, \$12 per thousand feet.

The pine timber land in the Allegheny valley is also rapidly enhancing in value as well as the lumber. Ten years ago the best timber tracts could be bought at from \$1 to \$6 per acre, according to their location and distance from good rafting streams. The same quality of land is now worth from \$5 to \$25 an acre; and the value of the entire timber region of the Allegheny is increasing at a yearly rate of $33\frac{1}{3}$ per cent.

In these days of western land speculation, it might be well for all who have capital to invest in such enterprises to bear in mind the few facts we have stated about the lumber trade of Pittsburgh, and give a further examination to the subject. There are no western lands that are more steadily rising in value; and with the consumption and demand for pine lumber, the same increase will continue in proportion as the demand enlarges and the supply diminishes.

In addition to the Allegheny lumber region, there are at the head waters of the Monongahela, dense forests of the finest pine timber, which have as yet not come into the market, owing to the difficulties of navigation; yet that that region will become equally valuable in a few years there can be no doubt, as the rapidly increasing price of good pine timber lands will justify greater expense in bringing it to market and consequently expenditure of capital by private individuals, or public companies, in clearing the head waters of the Monongahela of such obstructions as now prevent the running of lumber.

The Pittsburgh and Connellsville Rail Road, which penetrates into the same region of country, will add to the resources of the lumber trade of Pittsburgh. In Somerset county there are large sections of unsurpassed pine and hemlock. In 1853 the lumber business of that county was estimated at \$300,000, most of which found an outlet to the East and tide water by the Chesapeake and Ohio Canal.

CHAPTER XV.

SALT.

As an article of trade, salt is one of the staples of Pittsburgh; and although from the low price at which it is sold, it does not present so imposing a front as some other articles, yet it is deserving of a distinct and separate mention, as one of the sources of her wealth. Until the beginning of 1796, Pittsburgh was supplied with salt from the eastern cities, packed across the mountains on horses, and in wagons, at a high rate of freight. In the beginning of that year, Quartermaster-General James O'Hara had occasion to visit Niagara. He there ascertained that salt could be brought to Pittsburgh cheaper from the Onondago works in New York State, than from the eastern cities. And he was instrumental in causing large quantities to be brought by way of the lake to Erie, and thence to Pittsburgh, by Le Bœuf and French creeks and the Allegheny river. The supply from this source was continued until 1810, when the manufacture of salt on the Kenhawa came into competition with the New York works, whose supply was in 1812 entirely cut off by the war. The opening of the salt works on the Kiskiminetas and the Allegheny, produced a third revolution in the salt trade.

The mineral formation of the Western Pennsylvania salt region, renders it, from the great abundance of coal and the ease with which it is mined, one unsurpassed for advantages in the prosecution of the manufacturing of salt—the great article, fuel, not costing more than three cents a bushel. Pittsburgh is the market to which the salt works look, not only for the sale of their production, but also to purchase their supplies.

In 1834, the inspection of Salt in Pittsburgh was	34,381	barrels.
" 1835, " " " " " "	18,273	" "
" 1836, " " " " " "	17,460	" "

The salt works in the vicinity of Pittsburgh are principally situated in Allegheny, Armstrong, Indiana and Westmoreland counties. The data from whence the following statistics are made up was furnished by a firm largely engaged in the salt business of this city.

Counties.	No. Works.	No. Hands.	Bushels Coal Consumed.	Barrels Salt.	Capital.
Allegheny,.....	12	81	884,000	64,500	\$152,500
Armstrong,.....	13	65	487,000	32,800	66,000
Indiana,.....	5	20	86,000	10,000	30,000
Westmoreland,.....	19	76	474,000	38,500	74,000
Total.....	49	242	1,931,000	145,800	\$322,500

The expense and production in dollars would stand thus :

242 men.....	\$72,600
1,931,000 bushels coal.....	67,585
	\$140,185
145,800 bbls. salt.....	\$187,200

Of this production there is delivered at Pittsburgh an average amount of 105,000 barrels, having a value of \$130,000. The remaining 40,000 barrels are shipped to other points, and meet the wants in the immediate vicinity of the various works. The entire value, however, finds its way into Pittsburgh, from the fact that it is the market whence they derive their supplies.

CHAPTER XVI.

IRON.

The present sources from whence Pittsburgh draws her supply of pig iron, are,

First, The Allegheny region, from whence she receives hot and cold blast charcoal metal. This metal is of various qualities, usually inclining to cold short, but the best sorts are of both hot and cold, and are strong in wrought iron: most of it is useful for correcting the red shortness of the anthracite metals; when gray it makes fine castings.

Second, The Anthracite region. The metals of this region are usually red-short, though there are exceptions, and nearly all make excellent castings when gray, (No. 1 grade,) and strong wrought iron when mottled, (Nos. 2 and 3.)

Third, The Hanging Rock region. From this district, 346 miles from Pittsburgh, on the Ohio river, a fine quality of charcoal metal, making good castings and wrought iron, is brought largely by river to Pittsburgh.

Fourth, From Tennessee. From this State large quantities of charcoal pig, of various qualities, are brought to this market.

Fifth, From the Juniata region. From this section charcoal metal of a very superior quality is obtained, but at the present

time in very limited quantities, most of it being turned into blooms before it comes into the market.

From the Monongahela river section of country, from Missouri and a few other sources, a limited supply is obtained. The coke iron consumed by the manufactories of Pittsburgh, is at present obtained both from a distance and from the neighborhood. The metal of this description made from the fossil ore of the central counties of Pennsylvania, is excellent for castings. The production of this quality of pig is now confined to a few furnaces, but the deposits of this class of ore in the State being immense, there will probably be a large and rapid increase in its production. From the neighboring counties of Fayette, Cambria, Beaver, Mercer, and Lawrence, coke metal is now brought to Pittsburgh; some of it making very fair castings.

From this cause, the introduction of metal smelted with coke or raw coal, it is reasonable to anticipate that in a short time a revolution will be effected, giving to the iron manufacture of Pittsburgh, in all its branches, an impulse, the extent and results of which it would now be premature to estimate. For though one might go below the truth, yet they would be above belief. In England the ores of the coal measures, smelted upon the spot where they are mined, have furnished the iron which, from its cheapness, has commanded the market of Europe. A similar result will arise in this country, when the ores of the American coal measures are fully understood, and properly worked; and from the superior quality of its fuel, the Pittsburgh coal region will take the lead.

If Pittsburgh has been able heretofore, from the cheapness and excellence of her fuel, to bring from such various and great distances, pig metal and (excepting the eastward,) to send back bar iron and castings to compete at home with the local mills and foundries, she will do it still more successfully, if she can find her supplies of metal in her own vicinity. Until recently it was not imagined that the ores existed in large quantities in this vicinity, except in a few cases, as the Cambria iron works location. Now, the best informed persons believe that many such locations can be found. If to the above named neighboring counties, we add Butler, Armstrong, and Westmoreland, all known to possess large deposits of ore, we have a belt of counties which either already have coke furnaces, or known locations where they would be successful.

Considering how little skilled research has been brought to bear upon this matter, the commencement already made is really surprising, small as it is. The carbonates of the coal measures, unlike most other ores of iron, are often difficult of detection, except to the practiced eye. The attention of but a few individuals, here and there, has yet been attracted to this subject, and not one-tenth of the whole region within a circuit of 60 miles of Pittsburgh, has been really explored at all. The great profits which will be reaped by the well located of the coke furnaces now

running, or shortly to be erected, will, it may safely be expected, lead to a general development of whatever mineral wealth of this description we really possess. Time only can determine whether it will prove as great as we are led to expect, from the general geological formation, the marked presence of iron in nearly every rock, and the rich deposits already casually hit upon, through a circuit of counties clustered about us.

One reason for the languid interest until recently felt in the coke metal manufacture, was the fact that the production was of very inferior quality, and was unskillfully worked at the mills. Later experience, both at the blast furnace and the puddling furnace, have obviated this difficulty, and a satisfactory quality is now made. The same early delays and trials attended the first attempts in England, and embarrassed the beginning of the anthracite metal manufacture in this country. The following facts will serve to give some idea of the importance of this change in the method of producing Pig Iron.

Charcoal pig, to be sufficiently profitable to maintain its manufacture on a large scale, insuring steady production, must be worth \$25 at the furnace. The furnace sites are necessarily isolated from main channels of transportation, so as to command large tracts of cheap woodland, and the conveyance is hence costly, from actual freight charges, and from uncertainty and danger attending its delivery in market. Hence \$30 per ton in Pittsburgh is as low a price as will support this mode of production profitably. Past experience shows this.

Anthracite pig can perhaps be made in Eastern Pennsylvania for \$20 per ton at the furnace, and yield profit enough to make the production permanent. Much lower than this it can never go. The coal is costly to mine, is not found in the same locations with the ore, and is saleable at high prices for other purposes wherever mined. Here is a natural barrier forbidding forever the rivalry of anthracite with bituminous coal in the cheap working of iron. Call the freight of the anthracite pig \$5 per ton—\$25 per ton then, delivered in Pittsburgh, may perhaps sustain this mode of manufacture. Prices, both of metal and freight, have heretofore ruled higher.

Coke pig, where, as is now the case, ore coal and flux are mined out of the same or adjacent hills, can be made for \$12 to \$13 per ton. Near any of the rail roads, and within 60 miles, it can be delivered for \$1 per ton. Sold at \$17.50 per ton, it would yield a profit sufficiently handsome to cause the employment of enough capital to create an immense production.

Buying metal at \$17.50 per ton, the foundries could then sell castings at two cents per pound and realize the same profits as now at two and a half cents, which may be taken as the current price, with the average cost of metal at \$27.50 per ton. The rolling mills could sell bar iron at two cents per pound here, or deliver it on the sea-board at two and a quarter cents, which is about the same rate as the English ton at \$50. The products of

the iron foundries and mills of Pittsburgh could then enter successfully the eastern markets.

Such prices can only be profitable where coke metal of good quality is worked with the cheapest and best of bituminous coal, but under these conditions it must supplant in a great measure all the other modes of manufacture. The resulting demand cannot well be estimated, but if to the increasing wants of the West, be added the opening of the markets of the seaboard and of the South, some conception may be formed of the result, to Pittsburgh and the country at large, of the development of the manufacture of coke pig metal.

Out of the 304 furnaces and bloomeries in the State in 1850, those of the western counties, 63 in number, find their exclusive market here, and a majority of those in the East send large quantities of their metal to this city. Not only from the furnaces of her own State does Pittsburgh procure iron for the use of her rolling mills, her foundries and her engine shops, but, as previously shown in this chapter, from Ohio, Kentucky, Tennessee, Missouri, and the far off shores of Lake Superior. The tables of production and increase in the various branches of iron manufacture in this city show, at their proper place in this volume, how steadily the demand for iron has enlarged the business in Pittsburgh. In a foregoing paragraph in this chapter, it is stated on the authority of A. S. Hewitt, Esq. of New York, that if the consumption continues to increase in the ratio of the last 117 years, it will require 140,000,000 tons yearly to supply the demand in the next century. The question at once arises, where is the immense quantity to be made? To solve this question, there is a certain condition of things to be considered. First, is required an adequate supply of the raw materials: then a location of those materials that will enable them to be cheaply brought together; for, as previously stated in other chapters of this volume, the value of raw material does not lay so much in what it is, but where it is. There must be cheap and extensive means for transportation to market, also a sufficiently populous country to render labor attainable at a reasonable cost; and likewise skill to manage such works as may be erected in an economical manner.

All these requisites exist in the western and eastern iron counties of which Pittsburgh is the focus; and it is obvious that in the solving of the question, of from whence will come the immense increase required by the calculation of Mr. Hewitt, that the country mentioned must aid largely in supplying any such demand; and that Pittsburgh will consequently increase wonderfully in furnishing her quota of the demand. For not only in the manufacture of pig iron, are the requisites just mentioned required, but in the manufacture of metal into merchant bar, the various qualities of steel, and the multiform productions of the foundry and the machine shop. For the rapid, large, and cheap production required for the profitable conversion of metal into the articles arising from the various manufactories just instanced, Pittsburgh possesses in

the highest degree that condition of things already specified, as necessary to the production and manufacture of iron. That the prospect of increase in the use of iron fully justifies the estimate of Mr. Hewitt, no one can doubt who carefully considers the various trades whose every movement demands iron: who takes into view the rapid strides which civilization is making over the earth, and the consumption of iron it demands as it goes: the hundreds of new inventions consuming iron, which are yearly giving ease to the labor of man, safety and comfort to his existence, and wealth to his coffers: who attentively follows out the demand after demand for iron which the construction of a single rail road creates, the building of a steamer, the erection of a factory, or the upspringing of the hundreds of villages in the West and elsewhere, and their consequent business.

The production of a ton of iron foretells to the careful observer not the satisfying of a demand, but rather the creation of other demands, from the very necessity which arises in its consumption, to consume more in order to properly apply the first production to its designed uses. The laying of a railway does not imply the completion of a supply, and the destruction of a demand; but rather the creation of an agent whose ever existing necessity will imperatively demand a daily supply, working to the raising up of fresh demands "which grow by what they feed upon." With 23,000 miles of railway, which the United States possesses, the annual consumption to keep them in repair will be, it is estimated, 690,000 tons, or ten per cent. of the original outlay; and in a large proportion of the instances where iron is the foundation or the supporting element of a business, a necessity, or a convenience, the same results follow as the workings of a railway exemplify. It has been stated that the future millionaires of America will be found among the iron and coal mines of Pennsylvania. That they will be found among the rolling mills, the foundries, the machine shops, the coal companies of Pittsburgh, there can be no doubt. A reference to the various chapters treating in this volume of those requisites, supply of raw material, facility for its concentration, for manufacturing, and for distribution, will at once convince how surely nature designed the location of Pittsburgh for the focus of a huge manufacturing district, and how skillfully the cunning hand of man is improving it by rail roads, by canals, and by rendering yet more available the rivers.

The tremendous increase in the production of iron by Great Britain has been the result, not so much of want in other countries of the material, or the capability of production, but that England was the best market; rendered so by the cheapness of labor. In the rapid increase of consumption of iron, a point will be reached in which the natural resources of Great Britain in material and labor will be overtaken, when, the probabilities are, the United States will come into an equal if not superior position as a supplier of iron to the world.

The position which Pennsylvania would attain in such a state of

trade is apparent from her 15,000 square miles of coal and the deposits of the various iron ores which accompany it in every direction; and the rank of Pittsburgh is easily deducible from the remarks and the data given in this and previous chapters. More capital is sorely needed in Pittsburgh, to improve her vast iron privileges; and we commend the facts in relation to them to the more than serious thought of capitalists,—to their close personal examination.

Although the consumption of iron enters more or less into all the business of Pittsburgh, yet her iron manufactures are understood to comprise the product of her rolling mills, her foundries, and her machine shops.

Foremost in the list stands the Rolling Mill.

The increase of the Pittsburgh mills is shown in the following statement:

Progress of Rolling Mills from 1808 to 1854.

1808,	There were 4 Nail Factories, making 200 tons of Nails.	
1810,	" 6 " " " " Nails to the value of.....	\$ 49,890
1813,	" was 1 Rolling Mill erecting.	
1817,	" were 7 Nail Factories, 47 hands.....	174,716
1820,	" " 4,900 tons of bar and sheet iron sold in the Pittsburgh market.	
1829,	" " 8 Rolling Mills, using 6,000 tons blooms, 1,500 tons pig iron, and employing 300 hands.	
"	" " 9 Nail Factories, employing 150 hands, and producing 18 tons of nails.	
1830,	" " 9,282 tons of iron rolled.	
1831,	" " 6 Rolling Mills, using 1,860 net tons of metal.	
1836,	" " 9 Rolling Mills, using 10,950 tons pig, 17,600 tons blooms, consuming 2,000,000 bushels of coal, and employing 1,000 hands.	
1837,	Harris' Directory gives the value of the production of five of the Rolling Mills at.....	1,497,500
1850,	Falnestock's Directory says: "There are in Pittsburgh thirteen Rolling Mills, with a capital of about \$5,000,000, and employing 2,500 hands. These mills consume 60,000 tons of pig iron, and produce bar iron and nails amounting to \$4,000,000 annually."	
1854,	There were, according to C. A. M'Knight, in Pittsburgh, 19 Rolling Mills, having 176 puddling, 121 heating furnaces, and 253 nail machines; consuming 98,850 tons of pig, blooms and scraps, employing 2,720 hands.	

The details of the foregoing exhibit of the progress in the rolling mill business of the city, are gathered from various sources, and many of them were apparently loose estimates, made from general, not special data.

In 1857, there are in Pittsburgh twenty-two iron Rolling Mills.

A number of the iron rolling mills have attached to them extensive nail manufactories; while others devote their whole attention and capital to the production of bar iron. Of this latter class is the house of EVERSON, PRESTON & Co.; to whose circular in the concluding chapter of this book we refer the reader.

This house manufactures round and square rolled iron from $\frac{3}{16}$ to $4\frac{1}{2}$ inches. Of flat iron they make from half-inch hoop up

to the largest sizes made. Although these varieties are rolled by most of all of the Pittsburgh mills, it is proper to say that the above mentioned house make a large variety of what are called odd sizes, many of which are not procurable at any other mill.

This one house also make extensively long and short BRIDGE BOLTS, which they turn out, screw, nut and bolt complete, of any dimensions, or of any length.

Of Steel Rolling Mills there are in the city three devoted to the manufacture of steel exclusively, and three where that business is in connection with the rolling of iron.

The manufacture of steel was commenced in this city in 1831 by ISAAC JONES, Esq. who still remains in the trade, being the senior partner of the firm of JONES, BOYD & Co. to whose circular in the closing chapter of this book we refer the reader. The manufacturing of steel was first commenced on a small scale, one small furnace of not over twenty tons capacity being the foundation of the present extensive works of the firm alluded to, and of the heavy make of the article in this city. The steel mills having sixteen furnaces with a capacity of 650 tons every three weeks. The first efforts were confined to spring steel, but there is now made blister, spring, plow and cast steel.

A large trade is carried on in blister steel, but the principal part made is rolled into plow and spring steel; a large portion is also melted and run into cast steel, to supply the growing demand in this market for that article.

The greater part of the cast steel made in this market is of the lower grades, which are, however, equal, and also often superior to the imported of the same grade.

The steel manufacturers of this city are, however, feeling their way gradually toward the production of the finer grades.

The finer grades of cast steel are made in this city, but to a somewhat limited extent, owing to the necessity of using Swedish iron in its production, the expense of importing which is not justified by the price of those qualities of steel. Such quantities of the finer grades of cast steel as are made here are, however, in no ways behind the best imported brands. The improvements in the make of American iron will, there is no doubt, in a few years enable the manufacturer to produce an article of iron which will compete with the best Swedish, when our steel manufacturers will be enabled to make such combinations of metal as will produce the finer grades of cast steel of such quality as will compete as successfully with the European article of the higher grade as they now do with the medium and lower.

The firm of JONES, BOYD & Co. already alluded to, have succeeded so well in their combinations in the manufacture of SAW STEEL PLATES, that they now make an article which is pronounced by Saw Manufacturers equal to the best imported.

The extent of the entire Iron and Steel business of the twenty-five rolling mills of Pittsburgh are best shown by the following figures:

These mills consume,

	Value.
105,333 tons Pig Iron,.....	\$3,159,990.00
27,267 " Blooms,.....	2,181,360.00
4,931 " Scrap Iron,.....	186,440.00
2,550 " Swedes and Rolled Iron,.....	178,500.00
6,187,515 bushels of Coal,.....	251,500.60
113,000 " Coke,.....	5,900.00
5,040 tons Fire Clay,.....	21,500.00
2,095,000 Fire Brick,.....	41,900.00
9,258 tons Ore,.....	120,696.00
51,800 gallons Oil and Grease,.....	53,034.00
Small items to amount of.....	43,000.00

Total,.....\$6,243,820.60

They employ 4,623 hands, whose yearly wages amount to..... 2,366,020.00

The capital in the ground, buildings and machinery employed in prosecution of business is..... 3,280,000.00

They produce as follows :

	Value.
3,212½ tons Boiler Iron,.....	\$ 388,712.00
67,100 " Bar, various sizes,.....	4,697,000.00
5,637 " Sheet Iron,.....	681,077.00
699,762 kegs Nails, Spikes and Rivets,.....	2,797,048.00
10,000 boxes Tacks,.....	50,000.00
800 tons Galvanized and Imitation Russia Iron,.....	96,000.00
10,850 " Blister, Plow, Spring and Cast Steel,.....	1,747,850.00
2,500 Crow Bars,.....	5,000.00
1,500 Sledges,.....	1,875.00
Axles to amount of.....	80,500.00
Springs ".....	135,000.00
Vices ".....	50,000.00

THE FOUNDRY BUSINESS is next in importance in the iron manufacture of Pittsburgh.

In 1804 the first iron foundry was established in Pittsburgh.

The growth of the foundry business in this city from that time was steady, and at periods rapid. At the present day, they rank second in the iron business of Pittsburgh, in the amount of capital invested, extent of ground and buildings occupied, and number of hands employed. The variety of their staple castings is large; and there is no description of foundry work which the skill, facilities and resources of the firms engaged in the business does not justify them in undertaking. Heavy mill gearing, rail road castings, copper mining machinery, rolling mill castings, cotton and sugar mills and presses, cannon, plows, chilled wheels, shafts, machines for punching, drilling, and planing iron, &c. &c. hollow ware, stoves, grates, &c.

Of these two last mentioned articles a large amount is annually made, and a very heavy trade in them carried on. The house of

PAYNE, BISSELL & Co. to whose circular in the concluding chapter of this volume we refer the reader, are the heaviest makers of these two articles.

This firm have over fifty patterns of stoves, and over one hundred styles of grates, which for finish and beauty are equal to any manufactured in the United States. The fact that this house is filling orders for their grates from eastern builders, is proof that they are successfully rivaling the sea-board manufactures.

Their patterns of stoves embrace every variety of wood and coal cook and parlor stoves, and for beauty, durability and convenience, are equal to any manufactured in the country, being made by superior workmen from the best Hanging Rock metal.

At the Pennsylvania State Fair for 1856, being the last held in Pittsburgh, this firm took five silver medals, being the first premiums for the best cooking stove for coal and wood; also, the best parlor stove, the best cooking range for families, and also for the best display of stoves, ranges, grates and fenders.

Dealers in stoves and grates will find it to their interest to try the Pittsburgh market, and especially make an examination and trial of the stock and patterns of the firm above mentioned.

There are also manufactured by our foundries, platform and other varieties of scales, steam engine work, a long list of articles known as domestic hardware, and in fact every description of form, which the necessities and the luxuries of the Great West demand, are daily turned out from over forty foundries located in this community. A circumstantial account of the numerous articles cast, and a history of each of the foundries, with however so brief mention of interesting matters connected with them, would occupy more space than it is convenient to devote to the whole iron business of Pittsburgh, and we content ourselves with simply exhibiting the progress of the foundry business, from 1804 to 1857, showing the number of foundries, hands, and tons of metal consumed.

Year.	Foundries.	Hands.	Tons metal consumed.
1804,	1	—	—
1810,*	2	—	400
1815,†	3	—	—
1817,‡	4	87	—
1825,§	8	—	—
1829,§	9	225	3,500
1836,|| .....	18	1,000	12,000
1850,¶	30	—	20,000
1854,**	38	1,765	28,525

* Census, by U. S. Marshal.

† Directory of Pittsburgh, 1815.

‡ Census taken by Councils.

** Charles M'Knight, in Hunt's Magazine, 1854.

§ Pittsburgh Gazette.

|| Lyford's Western Directory.

¶ Fahnstock's Directory, 1850.

In 1857 there are in Pittsburgh sixteen foundries, whose business is simply the converting of metal into castings, and who do not re-use their own castings to manufacture steam engines, plows, domestic hardware, &c. &c. There are also some twenty-four others using partially and wholly their own castings, being foundries of all descriptions.

These sixteen foundries first mentioned consume :

	Value.
19,200 tons Pig Iron,.....	\$576,000
540,500 bushels Coke and Coal,.....	27,025
81,000 Fire Brick,.....	1,620
79,500 bushels Fire Clay,.....	11,720
1,266 barrels Blacking,.....	3,798
1,575 gallons Oil,.....	1,732
Also, Lumber, Iron, Nails, Hardware, Sand and Loam, to the value of.....	28,845

\$650,740

They employ 860 hands, whose yearly wages are,.... 346,500

“ keep twenty steam engines running, and the capital in the grounds, buildings and machinery, is..... 498,000

They produce 16,890 tens of castings of the various descriptions before enumerated, worth.....1,248,300

In these foundries may be daily seen cast, articles ranging from the heavy Columbiad, (cannon,) weighing 15,300 pounds, throwing a ball of 124 pounds, to the finest Berlin work of articles not larger than a finger.

In addition to the above, there is a CANNON FOUNDRY, established by Joseph M'Clurg in 1814.

The first contracts for casting cannon at this foundry, were made for supplying the fleet on Lake Erie and for the defense of New Orleans, during the war of 1812. A large number of cannon have since been made at the works, of all sizes, weighing from 800 to 15,300 pounds each; about 1500 in all up to this time.

There is consumed by the foundry,

Iron and other materials to the value of.....\$19,526

And there are employed in the works 28 hands, whose wages are annually..... 12,040

The value of the work turned out is..... 40,000

And the capital in buildings and machinery used in the business, is..... 41,000

MACHINE SHOPS are third in rank in the consumption of metal in the iron business of Pittsburgh. In the product of these is comprised the steam engine. The value of the steam engine to the world, no one has attempted to estimate.

Some years ago, M. Michael Chevalier estimated that the steam engine had already furnished the world with a moving power of more than 10,000,000 horses or 60,000,000 of men.

In 1775, steam engines were first applied to the pumping of mines and the manufacture of iron; and in 1794, nineteen years after, the steam engine was assisting at Pittsburgh to build up that system of manufactures which has given her so wide a reputation. With the building of the steamboat, the construction of steam engines was successfully instituted in this city.

The following table shows to a certain extent the increase of engine and manufacturing shops here from 1808 to 1837 :

1808,	There was one Machinist and Whitesmith.
1813,	“ were two Steam Engine Works.
“	“ was one Wool Carding Machine Factory.
“	“ “ one Cloth Steam “ “
1825,	“ were six Steam Engine “ Factories.
1829,	“ “ seven “ “ “ “
1830,	“ “ 100 Steam Engines built.
1837,	“ “ 10 Steam Engine Factories.

The sources from whence to gather figures showing the progress of this branch of business are sparse; and in the absence of any information which will show satisfactorily the values of the steam engine and machine business at the various dates given above, we proceed to the business of the present day.

There are now in operation here sixteen Steam Engine and Machine shops.

These sixteen machine shops have attached to them twelve foundries. They have in the buildings, machinery and grounds used in the business, capital to amount of.....\$287,000

There are employed in the sixteen machine shops, 737

hands, whose average wages amount to..... 306,802

They consume 8800 tons pig iron, worth..... 264,000

“ “ 360,000 bushels coal,..... 17,015

And other material to the value of..... 210,198

They keep 16 steam engines running, and

produce 339 steam engines, valued at....\$508,000

other machinery to value of..... 328,300—\$836,300

There is also one “Machine Tool” factory, the quality of whose make of “tools” is not surpassed by that of any firm in the United States.

This house employs twenty hands, whose wages are \$9360 a year; the products of the house are about \$15,000.

BOILER YARDS are the natural accompaniment of our machine shops; of these there are in the city eight. They employ 1049 hands, whose yearly wages are \$75,980; they consume 1470 tons boiler and sheet iron, \$177,870; they consume 72,000 bushels coal, \$3500; they consume bar iron, rivets and castings, to amount of \$10,800—total, \$268,150. They keep 7 engines running, and produce 595 Boilers, worth \$265,000; sheet iron and bridge work, \$40,000—\$305,000. The capital in grounds, buildings and machinery necessary to the business, is \$183,000.

SHOVELS, AXES AND SAWS are among the important iron and steel manufactures of the city. Shovels of all descriptions are made here, and a very large trade has been built up. The same advantage of iron and coal, alluded to before, in connection with other products of our mechanics, have in this class of manufactures given Pittsburgh an impetus which has enabled her to rival successfully all other markets. Her shovels and her axes are necessities to the completion of the stock of every dealer in hardware in the West; and every season adds to the number of purchasers who order these articles from Pittsburgh, to the neglect of other points.

The oldest and most extensive house in this line of business in the city is that of LIPPINCOTT & Co., to whose circular in the last chapter of this book we refer the reader.

This house was established in 1846 under the same style of firm.

The articles manufactured by this firm embrace axes, shovels, spades, mattocks, picks, grub hoes, wedges, harrow teeth, &c. also SAWS. Of this latter article they have turned their attention successfully to the production of an *extra cast steel saw*, of which they manufacture circular, mill, mulay and gang. These saws are equal in all qualities to any saws made, and are sold at less prices than the same quality of the best eastern houses, beside which reduction the purchaser at Pittsburgh saves freight. Messrs. LIPPINCOTT & Co. are the only saw manufacturing house in the city, and the mineralogical and other manufacturing advantages possessed by this locality enables them to rival in the manufacture of this article successfully any market.

The axes from the manufactory of this house have attained so high a reputation throughout the West that it is not necessary to dwell upon their points of excellence. Wherever axes are used in the western country they are the standard, and the first choice of the consumer.

By the use of improved machinery and the employment of only first class workmen, the article of shovels made by the same firm are excelled by none in point of finish and quality. This house itself consumes over 200,000 pounds of the best English cast steel, besides 1000 tons of various descriptions of iron, in the working of which they employ over 220 hands.

There are four firms in the axe and shovel business in this city.

These four factories consume 3173 tons Bar and Sheet Iron; 570 tons Steel; 394,000 bushels Coal and Coke; 770 Grind Stones; 34,000 Boxes; 31,400 dozen Shovel Handles—worth \$440,306. They employ 495 hands, whose yearly wages are \$231,660. They keep five steam engines running, and produce 44,000 doz. Axes; 32,000 doz. Shovels; 13,590 doz. Picks and Mattocks; 11,000 doz. Planters' Hoes; 2500 Vices—worth \$823,742.

The capital in the ground, buildings and machinery in use in the prosecution of this business is \$254,400.

FORGES.—Of these there are two for the forging of shafts, &c.

The most extensive, and in fact the most complete, is the PENN-

SYLVANIA FORGE, EVERSON, PRESTON & Co. proprietors, to whose circular in our concluding chapter we refer the reader.

This forge has three steam hammers of Nesmith's and of Kirk's make, calculated to forge every variety of shafting, from the smallest for mill purposes to the largest used for steamboats.

This firm, in the prosecution of their business, turn out every variety of shafts, piston rods, cranks, wrists, pitman jaws, levers, links for bridges, capstan spindles, tobacco screws, moulds, vice moulds, ladle moulds and anchors; also, a superior article of rail road car and locomotive axles—in fact every variety of hammered work is and can be executed at this forge.

The two forges consume annually Bar Iron, Coal and other materials to the value of \$156,462. They run two steam engines, and produce work to the value of \$224,500, which production gives employment to fifty-seven men, whose annual wages are \$29,600.

RIVER BLACKSMITHS AND CHAIN MAKERS.—The heavy amount of steamboat building carried on at this point has created a class of blacksmiths whose principal and peculiar business is the "ironing" of boats, as it is known. Of these there are seven. They consume 985 tons of bar iron, worth, with other material, to value of \$33,130. They employ forty-eight hands, and produce work to value of \$61,200. There are also in the city 100 blacksmiths, who do a general jobbing business to the amount of \$200,000 annually.

STEEL CULTIVATOR TEETH are manufactured by one firm, that of D. B. ROGERS & Co., to whose circular in the concluding chapter of this volume we refer the reader. The teeth made by this firm are the well known original Rogers' Patent Steel Cultivator Teeth.

These teeth being made all of steel, there is, from the peculiar shape of the stem, no breaking or crushing, as is continually the case where the tooth is a combination of cast steel and iron, as in the teeth made by other manufacturers. These teeth are in extensive use in all of the six New England States, in Canada, New York, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Wisconsin, Minnesota, Iowa, Missouri, Kentucky, California and Texas, in all of which sections of the Union they maintain, under all circumstances, the good reputation they have established for themselves.

PATENT HOT-PRESSED NUTS are manufactured largely here by two firms. The first nuts of this description were made here in 1850. The article has become so well known to commerce that no description is necessary. Both firms are making arrangements to manufacture bolts of all sizes extensively, and intend enlarging their works this year.

They employ two steam engines.

" " fifty-two hands, whose yearly wages are \$ 19,344

" produce 1700 tons Nuts, Washers, &c. worth.... 229,700

RAIL ROAD SPIKE MANUFACTORY.—This important manufactory

was started in 1852. It is the only establishment of the kind of any extent in the West, and the only one in Pittsburgh. The rail road spikes are manufactured by "Swett's Rail Road Spike Machine," the patent of which for the United States is owned by the firm. The establishment is running three machines of Swett's patent, and have in the last year turned out 3000 tons of spikes, worth \$250,000.

IRON RAILING, SCREW AND MACHINE MANUFACTURERS.—The manufacturing of iron railing, houses, tobacco, timber, mill, cider press and fuller's screws, and the construction of various kinds of machinery, is carried on by the subjoined firms. The advantages of construction of every description of iron work in Pittsburgh have been dwelt upon in various portions of this volume, rendering it but reiteration to mention here any of the advantages possessed by the firms engaged in the business, to compete with and successfully rival manufactures of the same class at other points. The firms engaged in this branch of business employ

Fifty-four men, whose yearly wages are.....	\$15,460
And consume material to value of.....	23,025
The capital absorbed by the buildings, grounds and machinery necessary to the prosecution of the business, is.....	31,000
They have three steam engines running, and produce work yearly to amount of.....	52,000

FILE MANUFACTURING is also carried on here, and employs

Fifteen hands, whose yearly wages amount to.....	\$ 6,240
The business consumes Steel to amount of.....	2,600
Files are made to amount of nearly.....	12,000

SICKLES are also manufactured here by one establishment, which is now of over twenty-five years standing. The sickle from this manufactory is admitted to be superior to any article either imported or of American manufacture, in the market.

The quantity produced and sold per annum varies from 2500 to 3000 dozens, which is probably about three times the entire product of all the other manufactories of the article in the United States.

SADDLERY HARDWARE.—The manufacture of this article of trade is carried on by two firms. They employ

Eighty-five hands, whose annual wages are.....	\$22,800
They consume material to amount of.....	15,402

And produce 4000 pair silver plated Hames; 2000 doz. Bridle Bits; 2000 doz. Brass Stirrups; 1500 doz. Iron Japanned Stirrups; Lightning Rods; Japanned goods, and Malleable castings—worth, in all, \$44,000.

The capital absorbed by buildings, machinery and ground necessary for carrying on the business, is...\$10,400

The manufacture of **RIVETS** is an important branch of the iron business of the city.

There is only one manufactory in Pittsburgh for the production of RIVETS, and it is also the only one of its kind in the West. The establishment makes all sizes of iron and tinned rivets, suitable for every description of sheet iron and tin plate work, from 8 ounce to $\frac{3}{8}$ inch in diameter. The rivets are all made of the choicest Juniata iron.

The establishment turns out about 150 tons of rivets per annum, valued at \$20,000, employing eight hands. The capital in machinery, &c. is about \$10,000.

The fact that this manufactory fills heavy orders for eastern houses, is conclusive as to the quality of the articles made, and of its ability to successfully compete with eastern producers of the same goods.

WIRE FACTORY.—There is only one factory of the kind in the city. The wire manufactured is from No. 1 to 36, and made of the first quality Juniata Iron.

The establishment employs fifteen hands, whose yearly wages are \$7020. There is made in it 300 tons of wire annually, valued at \$40,000.

In the manufactories of Pittsburgh consuming iron and steel, must be included several for the production of arms.

In addition to the cannon foundry already described, there are two manufactories of GUN BARRELS. These employ

Thirty men, whose wages amount yearly to	\$ 16,720
And consume material to the value of	8,620,50
They run two steam engines, and produce 16,500	
Gun Barrels, worth	28,875

There is also one RIFLE AND GUN MANUFACTORY. This establishment is the only one in the West which constructs rifles and guns for the trade, exclusively. It has been in operation in the present large scale about four years, and in that time this article of Pittsburgh manufactures has attained a reputation throughout the whole western country that is rapidly drawing off trade from eastern houses to this point.

This establishment employs twenty-five hands, whose yearly wages amount to \$15,600, and turns out now at the rate of 4000 rifles a year, with a steady increasing demand.

Another species of arms, and a new branch of Pittsburgh manufactures, is the REPEATING PISTOL MANUFACTORY. This is the only manufactory west of the mountains. The business, owing to the time required to manufacture tools for the proper construction of the weapon, has as yet no statistics worth recording. The pistol is a valuable one, equal if not superior to any repeater now before the public. Of its superiority we may instance the fact that it can be discharged with the same certainty and precision as any other now made, and five times where others not self-cocking can be fired once. The pistol is of "Ells' Patent."

The making of what is termed DOMESTIC HARDWARE is carried on in two establishments on an extensive scale.

The heaviest and most extensive firm is that of LIVINGSTON, COPELAND & Co. proprietors of the NOVELTY WORKS, to whose circular in the concluding chapter of this book we refer the reader.

The Novelty Works were established in 1833 by L. R. Livingston, Esq. who still remains in the business as senior partner of the firm.

The origin of these Works was laid in the "Platform Scale" business—the founder, Mr. Livingston, being early connected with the well known works of Messrs. "Fairbanks," of Vermont, and familiar with the origin, construction and excellence of the "Fairbanks' Scale," which this firm continue to manufacture to a large extent, and in a great variety.

The Works are situated in the city of Pittsburgh, only one square from the "Monongahela House." The main building is of brick, three stories high, and fronts 80 feet on Grant street by 275 feet on Front street, covering an area of 22,000 square feet, or over half an acre; out-buildings and enclosures attached thereto give an entire area of over an acre—upon which constant employment is given to 400 workmen, whose wages, \$10,000 per month, are paid in cash every Saturday evening—the produce of their industry being nearly half a million of dollars per annum.

Located at the head of the vast, productive and prosperous valley of the Mississippi, and in the very Birmingham of America, these Works have received, and are now enjoying a liberal patronage from the western and south-western States; and have attracted to considerable extent the trade of our eastern cities, the southern States, and Canadas. The name of the "Novelty Works," and their productions, are becoming familiar to the trader and consumer throughout the whole country.

In this branch of Pittsburgh manufactures is included the manufacture of stock and ore, depot, dormant, pig metal, portable, platform and counter scales; paint, "kaughphy" and corn mills; copying presses; locks, of twenty different descriptions; a great variety of latches, bedstead castors and fasteners, weights, bell-pulls, sauce pan handles, wardrobe hooks, hinges, bolts, stands for fire and sad irons, umbrella stands, tobacco cutters, locking hasps, screw wrenches, and in fact every description of malleable castings and domestic hardware.

The two establishments in operation in Pittsburgh employ 500 hands, whose yearly wages amount to over \$140,000. They consume 2200 tons of metal, worth \$76,000, and copper, zinc, lead, nails, coal, lumber, bar and sheet iron, knobs, screws, japan, to the value of \$100,000, beside a large amount of other materials. They produce articles in their line to the value of nearly \$600,000.

SAFE MANUFACTORIES occupy a prominent position among the manufactories of the city—not so much from their number, as from the wide demand which has arisen for their productions. The safes built by Pittsburgh houses have been repeatedly subjected to severe trials, both intentionally and accidentally, and

with the most satisfactory results, in every case where tried, proving that to their protection could be safely confided by the business man the accounts and the papers of his business, not only from preservation from fire, but also from the burglar. In point of workmanship in all the details of construction, they rival successfully the best Eastern manufactories; and the increasing demand for them is indicative that in price, as well as workmanship and security, they are entirely satisfactory to the business community. There are engaged in the business three firms, who employ

Sixty-five hands, whose yearly wages amount to.....	\$28,600
They consume	
Bar and Sheet Iron to amount of.....	\$29,500
And other materials to amount of.....	30,200
They produce	
1,600 Safes, worth.....	\$96,000
100 Vault Doors.....	10,000
60 Burglar-proof Boxes.....	10,000
	—————\$116,600

CUTLERY AND SURGICAL INSTRUMENTS are manufactured to a considerable extent in Pittsburgh, by three firms. They employ

Twenty-nine men, whose yearly wages amount to.....	\$12,080
They consume materials to value of.....	5,535
They keep three engines running, and produce articles in their line of business to amount of.....	30,000

In the productions of these firms are all varieties of cutlery of the finest grades, and all descriptions of surgical instruments, of excellent quality. The workmanship of the articles is not surpassed by those of foreign importation, or by those made in the manufactories of other cities. This branch of trade is yet in its infancy here.

SMUT MACHINES AND SEPARATORS are also manufactured largely here by two firms, whose yearly receipts for those articles are over \$40,000.

PLOW MANUFACTORIES.—Of these there are three. The plows from these establishments are to be found in all portions of the West. Large quantities are shipped to the South, and in fact to every section of the country lying west of the Allegheny mountains; and also in considerable quantities to the East.

These works employ 120 hands, whose yearly wages amount to \$71,760. They consume 1375 tons of Pig Metal and Scrap Iron, worth \$41,250, and other material to the value of \$38,500. They make 32,000 plows, which, with other articles, such as cultivators, &c. are worth \$192,000.

The agriculturists of Florida and Texas are among the customers of these factories; and one of the firms is making arrangements to introduce their plows extensively into Cuba.

FRANCIS' METALLIC LIFE BOATS are also numbered among the manufactures of Pittsburgh. They are constructed by W. B. Scaife,

First, near Wood street, who is agent for the western country. These boats are famous, as well for their actual qualities, which have made them not only one of the most efficient of life preservers in marine disasters, and the most economical boat for service, but also from two of them having been used by Lieutenant Lynch, in his expedition to the Dead Sea.

There are employed in their manufacture ten hands, whose wages amount to \$3900, consumes ten tons of galvanized iron, and produces 100 boats a year, worth \$10,000.

CHAPTER XVII.

COPPER.

Pittsburgh being largely interested in the copper business in all its branches, and the Pittsburgh management of copper mining having been peculiarly successful, a separate chapter is devoted to this metal, as eminently a Pittsburgh staple. There are managed here the following mines, which are now in successful operation, to a greater or less degree: Cliff, North American, National, Adventure, Ridge, Mass, Aztec and Central.

The attention is first naturally drawn to the PITTSBURGH COPPER SMELTING WORKS, from the location of this establishment here. In connection with it some mention of the celebrated "Cliff Mine" is made.

These works are situated on the Monongahela river, a short distance from the first dam, in the suburbs of Pittsburgh, and were erected in 1848 for the purpose of converting into ingot and cake copper the minerals of the Pittsburgh and Boston Mining Company, produced at its mines on Lake Superior.

The concern was originally projected in 1844, by a few of our leading business men, as a private enterprise; amongst whom we find the names of Charles Avery, Curtis G. Hussey, Thomas M. Howe, and William Pettit, who associated with them other parties residing here and in Boston.

In the spring of 1845 they organized a joint stock association, which was subsequently incorporated by the Legislature of Michigan, under the name of the Pittsburgh and Boston Mining Company.

The three first named gentlemen, with whom we find associated at a later period, Thomas Bakewell, Esq., and at a still later date, James M. Cooper, Esq., have continued in active management of the enterprise from the day of its inception to the present time.

The capital stock of this Company is \$150,000, divided into 6000 shares of \$25 each; of which \$111,000 only has been called in, or what is equal to \$18.50 per share; and yet, such has been the success attending the operations of the Company, that we notice the market value of its shares quoted in Boston at \$250.

The famous Cliff Mine is the property of this Company.

From the report of the Directors for 1855 we learn that the product

of the mine realized, after paying the cost of smelting and refining, the sum of \$475,911.25.

The amount of dividends paid to stockholders to the close of the year 1855, amounted to \$720,000, and we learn that \$180,000 additional will be paid from the earnings of 1856, making the aggregate dividend equal to \$150 per share, or about eight hundred per cent. upon the capital paid in.

The National Copper Mine Company has been in existence about three and a half years, during which time the shipments of rough copper, or mineral, amounts to 518,132 lbs., the net yield of which, in refined copper, was 385,950 pounds, from which was realized about \$92,000. The capital stock of the Company is \$300,000—divided into 10,000 shares of \$30 each, upon which \$11 per share, or \$110,000 has been paid in. Upon that amount this Company has gotten itself into so good a position that the proceeds arising from its product of copper will obviate the necessity of further calls of assessments upon the stock.

The Adventure Mining Company has been in operation ten years. The last two years the Mine has yielded 326,050 lbs. mineral. At present the yield is about 20 tons per month, which will yield a small net profit to the Mine. The capital stock is 200,000, divided into 10,000 shares, on which \$8.50 each has been paid in.

The Ridge Mining Company is another of the Pittsburgh mining enterprises, and commenced operations in 1850. The capital stock is \$200,000, divided into 10,000 shares, on which \$18.65 per share has been paid. In 1856 there were 124,000 lbs. mineral taken out.

The North American commenced its second Mine in 1852. They raised in the year 1856, 728,000 lbs. mineral, which produced 428,000 lbs. pure copper, worth \$120,500.

The Central Mining Company is a new Mine, which commenced operations in 1854. The capital stock is \$500,000—divided into 20,000 shares of \$25 each. On these only 85 cts. per share has been assessed—the product of the Mine, with this small per centage upon the stock, paying all expenses thus far.

The Aztec Mining Company has been in operation six years. There was raised during the first ten months of 1856, 106,370 lbs. of mineral, which produced 45,828 lbs. pure copper, worth \$11,099.39.

There are two COPPER ROLLING MILLS in the suburbs, for the manufacture of brazier's and bolt copper, which works exclusively the product of the Lake Superior Mines, and we understand makes a very superior article—one generally preferred, when great tenacity is required, to that which is made at the east of Chili and South American pig copper.

The Lake Superior copper being entirely free from foreign deleterious matter, is much more ductile, and its tensile power is considerably greater than the copper of South America or Cuba, which is more or less alloyed with foreign substances.

There are a large number of TIN AND COPPERSMITHS in this city, where every description of Copper and Tin work is made.

The principal and most extensive firm is that of WM. B. SCAIFE, to whose circular in the concluding chapter of this book we refer the reader. His business is more especially confined to the Copper-

smithing and Sheet Iron work, in which branches he employs nearly fifty hands in the manufacture of Copper Pipes, Portable Forges, Steamboat and Hotel Cooking Stoves, Deck Stoves, Chain Cables, Hog Chains, Bridge Work, &c. He also pays particular attention to all descriptions of Copper Smithing belonging to steamboats. He has also added to his business a new branch which is not mentioned under a special head in this book, that of METALLIC ROOFING OF GALVANIZED IRON. The roofing is applied to either wood or iron frames, and its peculiar advantages are that it is Rust Proof, costs less than copper by one-half, while possessing all the good qualities of that expensive metal, contracting or expanding very slightly. It will not crack or leak like tin, never requires paint, and is consequently cooler, from its bright surface refracting the sun's rays. This roofing is extensively used in the Eastern cities, and has lately been introduced into this city by Mr. Seufie.

Thirteen of the principal firms employ 116 hands, whose yearly wages are.....	\$ 44,720
They consume 2,277 boxes Tin, worth.....	34,155
“ “ 133,000 lbs. Cooper, “	33,250
“ “ Iron, Rivets, Wire, Zinc, &c. to value of....	29,506
“ “ Coal and Charcoal, “	3,500

Total,.....	\$145,131
They manufacture articles in their line to the value of.....	175,966

Besides doing an amount of work in jobbing which cannot be given with accuracy.

CHAPTER XVIII.

COTTON AND WHITE LEAD.

Cotton cloths, cotton yarns, and batting, are among the more important branches of Pittsburgh manufactures. The first mention of this manufacture in Pittsburgh, we find in Cramer's Almanack for 1804, where, in “a view of the manufacturing trade of Pittsburgh,” is the following remark: “Carded and span cotton by the carding machine and spinning jenny, \$1000.” In 1806, the same publication notices, “one cotton manufactory which can spin 120 threads at a time.” In 1808, the cotton factory is mentioned as producing cotton yarns, &c. “to the great credit and profit of its industrious proprietor.” In 1810 there were two cotton mills, one “working 60 spindles, and the other contemplates working shortly 234 spindles.” The value of their manufactures is set down at \$20,000. In 1817, there were “two cotton spinners,” as they are called in the report of the committee of Councils, who employed 36 hands, and manufactured cotton to amount of \$25,518. In 1837, there were six cotton factories, using 6200 bales of cotton, running 21,800 spindles,

employing 900 hands, and turning out cotton goods to value of \$770,000.

In 1857, there are five COTTON FACTORIES, having 33,666 spindles, 659 looms, and employing 1330 hands. These mills consume 13,600 bales of cotton, and produce articles in that line to the value of \$1,269,655, among which are 8,100,449 yards of sheetings and 2,870,000 pounds cotton yarns.

It will be noticed that although there is a decrease of one in the number of the factories since 1837, yet there is an increase of over 50 per cent. in quantity of spindles, and the same ratio through the various totals given, and in some instances a greater per cent.

WHITE LEAD.—The manufacture of red lead is mentioned in 1810 as having been carried on in Pittsburgh, when in the list given by the census, there were enumerated three red lead factories, producing leads to value of \$13,100. In 1813, there is noticed in Cramer's Almanack, "one white lead factory (Bee-lin's)." In 1817, the committee of Councils reported one white lead factory, employing six hands and producing leads to value of \$40,000. In 1837, there were eight lead factories, producing 74,496 kegs of leads, valued at \$206,000. In 1857, there are in the community of Pittsburgh but three white and red lead factories, yet their production is far beyond that of the eight factories of 1837.

These three works employ 65 hands, whose yearly wages amount to.....\$ 38,800

They consume 2,066 tons Pig Lead,..... 309,900

" " 50,000 gals. Oil,..... 50,000

" " 131,000 " Vinegar, 10,480

" " 50,000 bushels Coal,..... 2,500

" " 150,000 Kegs, 19,500

\$392,380

They keep four steam engines running, and produce

2754 tons of White and Red Lead, valued at.... 413,394

The capital lying dormant in buildings, machinery,

and ground used in the business, is..... 73,000

In the manufacture of this article, although the lead is brought from a distance, the price of labor, and fuel as it rates in this city, enables the manufacturer here of white lead to compete with those nearer the location of the mineral, but further removed from the fuel. The regular supply here is uninterrupted by any contingency of the seasons, while in the winter of 1856-57, the scarcity of coal in the western cities caused the stoppage of lead works in them. The fact that our manufacturers of this article daily receive orders from consumers in cities where there are extensive lead works in operation, is conclusive as to the superiority of Pittsburgh lead. One of the lead factories (J. SCHOONMAKER, to whose circular in the concluding chapter of this book we refer the

reader,) has lately introduced the manufacture of zinc paints, with great success. Heretofore they were made in New York and Philadelphia, but can be made here as low, if not a per cent. better than in the East. So far, the demand for the article is fully equal to the supply, the quality being the same as that from eastern houses. Our most extensive painters are using it. The City of Memphis, one of the most elegant steamboats afloat on the western waters, is painted with this article.

It will be noticed on a comparison of the white lead business of 1857 with that of 1837, that there is a falling off of five factories, but it will also be observed that the three factories of 1857 produce 2754 tons of lead, where eight factories in 1837 produce 902 tons, being an increase of over two hundred per cent.

CHAPTER XIX.

GLASS.

Arrangements for the manufacture of this article were commenced at Pittsburgh by Gen. James O'Hara, in company with Major Isaac Craig, in 1796. Mr. Wm. Eichbaum, of Philadelphia, was engaged to direct the erection of the works. Although this enterprise of Gen. O'Hara and Major Craig is usually considered the first step toward the creation of our present glass business, yet we are informed by William M'Cully, one of our oldest glass manufacturers, (to the card of whose house, Wm. M'CULLY & Co. in the concluding chapter of this book, we refer the reader,) that in 1795 there was a small window glass factory at what is now called Glass House Ripple, on the west side of the Monongahela, known in the early times as "Scott's," having an eight pot furnace. The making of glass was carried on with wood, and there was made three boxes to a blowing.

The first glass house of Gen. O'Hara had but eight pots, whose capacity was equal to three boxes to a blowing. To his perseverance Pittsburgh is indebted for the establishment of this important branch of her manufactures, Major Craig having declined any further connection in the business in 1798. He built in 1802 additional glass works, and made preparations to carry on the flint glass business, sending an agent to England for the purpose of procuring workmen, but the person returned unsuccessful from his mission. The progress of the business, as gathered from the various publications mentioned in the course of this work, and from oral information, may be thus grouped:

In 1803, Glass was manufactured to the amount of.....	\$12,500
and glass cutting was done to the value of.....	500
In 1807, O'Hara's glass factory is mentioned as producing glass ware to the value of.....	18,000
In 1809, the white glass works of Messrs. Robinson & Ensell were in operation.	
In 1810, there were three glass works, producing flint glass to value of.....	\$30,000
bottle and window glass to value of.....	20,000
	<hr/> 50,000
In 1813, there were five glass factories in the town, producing flint and green glass to the value of.....	170,000
In 1826, there were in operation in Pittsburgh and vicinity, 7 glass works, viz :	

	Boxes.
O'Hara's two works, called Pittsburgh Glass Works,.....	6,000
"Birmingham," opposite Pittsburgh.....	4,000
New Albany, at the mouth of Redstone creek, 4 miles below Brownsville.....	4,000
"Benedict Kimber," at Bridgeport or Brownsville.....	4,000
"New Boston," at Perryopolis, on Youghiogheny	2,000
Williamsport, occupied by W. Ihmsen.....	3,000
Geneva Works, established by Albert Gallatin...	4,000
	<hr/> 27,000
Valued at.....	\$135,000
In addition to which was made flint glass to value of.....	30,000
	<hr/>

\$165,000

In 1831, there were eight glass houses, four flint and four window glass, employing 102 hands, using 7000 cords of wood, 700 tons of sand, 1000 barrels of salt, 40,000 pounds of potash, 150,000 bushels of coal, and producing glass to amount of.....	500,000
In 1837 there were thirteen glass works, viz: 6 flint, 5 window, 1 vial, and 1 black—which establishments employed 444 hands. There was produced glass to the amount of.....	728,000

In 1857 there are thirty-four factories, 24 window, green and vial factories and 10 flint glass, for the circular of one of which latter kind, that of ADAMS, MACKLIN & Co. in the concluding chapter of this book, we refer the reader.

These 34 Glass Factories are carried on by nineteen firms, who have employed in the factories—

1,982 hands, whose yearly wages are.....\$ 910,116.00

In the manufacture of glass they consume

5,736 tons Soda Ash,.....	458,880.00
13,008 " Sand,.....	130,080.00
637 " Lead,.....	89,730.00
326 " Saltpetre,.....	65,200.00
7,035,000 feet of Lumber,.....	85,525.00
3,952 kegs of Nails,.....	10,856.00
161½ tons Bar Iron,.....	8,490.00
882 " German Clay,.....	2,646.00
2,820,668 bushels Coke and Coal,.....	141,024.40
276,500 Fire and common Brick,.....	3,450.00
3,173 tons Fire Clay,	6,346.00
5,299 cords of Wood,.....	15,897.00
238,940 bushels Lime,.....	47,788.00
4,160 barrels Salt,.....	7,280.00
442 tons Pearls,.....	66,300.00
1,514 " Straw,.....	13,626.00
40 " Castings,.....	2,000.00
90 " Willows,.....	12,600.00

Total,.....\$2,078,734.40

They run twenty steam engines, and produce

6,340 tons Flint Glass,.....	\$1,147,540.00
561,600 packages Window Glass,	
50 feet each,.....	1,123,200.00
131,700 packages Vials, Bottles,	
Druggists' ware, &c.....	329,250.00
80,000 Demijohns,.....	32,000.00

Total,.....\$2,631,990.00

LOOKING-GLASS MANUFACTORIES.—The wants of the West and South for mirrors are largely supplied from Pittsburgh. She is able to compete so successfully in the manufacture of looking-glasses with all other points where they are produced, that she is rapidly becoming "the head of the market" for this article of consumption.

There are in the city four factories. These four factories employ 88 men, whose yearly wages amount to \$36,400. They consume looking-glass plates to amount of \$55,000; also 600,000 feet of lumber; 230,000 feet of veneers, which, with other materials consumed, are of the value of \$61,840. They produce 194,000 German plate looking-glasses, worth \$145,000; and French plate glasses worth \$25,000 more.

For further particulars we refer the reader to the circular of A. LYON & Co. in the concluding chapter of this book.

In connection with this article it is proper to mention a gilt moulding factory, established in 1855, for the purpose of meeting a growing demand in the West for mouldings of a certain style, for the finishing of rail road cars, picture and looking-glass frames, &c. &c.

So far as we can learn, there is no other factory of this description west of the mountains, and but very few in the United States. This establishment, although but little known as yet, employs ten men, whose yearly wages are \$4160. They produce 500,000 feet of gilt moulding, worth \$25,000, and employ machinery valued at \$3500.

CHAPTER XX.

MISCELLANEOUS.

There are quite a number of BRASS FOUNDRIES in the city. Four of the principal employ 59 hands, whose yearly wages amount to \$22,984. They consume copper, tin, lead, zinc and coal to the value of \$23,642. Also, a large amount of gas fixtures and iron tubing. They produce brass castings, worth in the rough state \$36,000. Finished up they would be worth 40 per cent. more.

Besides brass castings, they turn out a large amount of gas fixtures, steam heating tubing, &c.

The most extensive establishment is that of ANDREW FULTON, who is also largely engaged in BELL FOUNDRING. In his foundry is cast the larger part, in fact we may say all the bells used on the large number of boats built at Pittsburgh, besides on those built at many other points. It may be well to mention here that Mr. Fulton also manufactures BABBIT'S METAL, and FULTON'S METALLIC PACKING. For further particulars of his business, we refer to his card in the concluding chapter of this book.

JAPAN WARE AND PRESSED GOODS MANUFACTORY.—An establishment where the above description of goods are made on an extensive scale, is carried on. It was established in 1840. Every variety of Japanned goods, of beautiful designs and fine workmanship, and also numerous articles in the pressed tin ware line, are annually turned out.

This manufactory employs forty hands, whose yearly wages are \$16,640. There are consumed in the production of the articles made by them, 2500 boxes of tin, with block tin, lead, wire, japan, bronze, &c. to the value of \$10,000. The productions are worth, at a low estimate, \$60,000. The machinery employed in the business, and the buildings and ground used to carry them on, represent a capital of \$15,500.

BRITANNIA WARE is manufactured by one house, which turns out a great variety of articles, in the production of which eighteen hands are steadily employed, and a large amount of ware produced.

WIRE CLOTH MANUFACTURING is prosecuted by one house. The firm employ four men, and produce articles in their line of business to amount of \$10,000; consuming in the production, wire to amount of \$3000, and brass to amount of \$800.

AGRICULTURAL IMPLEMENTS are among the manufactures of Pitts-

burgh. There are several firms engaged in the business. They produce agricultural implements to amount of \$80,000.

KEG FACTORIES are a natural result of the immense quantity of nails manufactured here. Of these there are three. They employ 180 men, whose wages, running full time, would amount to \$56,000. They consume lumber, hoops and coal to amount of \$137,600, and produce kegs and barrels to the value of \$156,000.

RAIL ROAD CAR BUILDING is also increasing in this city; there are now two regular rail road car factories. As yet they are employed in constructing burden cars. They employ sixty-one hands, whose yearly wages amount to \$28,538; consume lumber to amount of \$14,000; wrought and cast iron, and springs, to amount of \$10,991.99. Total, \$53,529.99. They produce cars to the amount of \$65,000.

A BUCKET FACTORY ranks among our extensive manufactories for the production of a single article.

This establishment employs about thirty hands, and turns out 270,000 buckets and 50,000 21-inch tubs in a year. - The capital in the machinery, building and lot, is \$30,000. There is consumed in the producing of the above-mentioned quantity of tubs, &c. 50,000 cube feet of timber a year, worth \$4000, besides hoop iron, paints, wire, &c. to the value of \$5000.

COACHES AND CARRIAGES are among the manufactures of this community, which are yearly shipped in quantities to the West and South-west. The character of their workmanship and beauty of finish and design, has given carriages from this city a fair reputation in the western and south-western markets, which the yearly increasing orders show is well sustained by the use of the vehicles. There are six manufactories, besides several jobbing shops. For the circular of one of the best of which, M. L. STEPHENS & Co. we refer the reader to the concluding chapter.

The six establishments employ 117 hands, whose wages yearly amount to \$60,800. They consume springs and axles, lumber, paint, bar iron, coal, trimmings and varnish to the value of \$59,400. They produce work to the amount of \$145,000.

WAGON MAKING.—The making of wagons has always been an important branch of Pittsburgh manufactures. They are sent in large quantities to Texas, Louisiana, Mississippi, Arkansas, and in fact to all the States in the Mississippi valley. In 1849 large numbers of them were used by California emigrants in their journey across the plains; and on the "Oregon trail" are many furrows impressed by the wheels of Pittsburgh-built wagons. Lumber and iron, the two articles entering into their construction, are at this point so cheap that an immense advantage is gained over all other locations.

Nine of the principal manufactories employ 180 hands, whose wages yearly are \$77,920. They consume iron, axles, springs, lumber and coal to the value of \$60,000, and produce 1810 wagons, carts, timber-wheels, &c. worth \$159,500.

These vehicles range from the small one-horse cart to the heavy six-horse road wagon.

TANNERIES.—There are in this community fifteen tanneries doing business on a handsome scale, besides several whose transactions are quite small. Thirteen of the principal ones employ 132 hands, whose yearly wages are \$54,902.

In these tanneries 477 vats and eight steam engines are used in the transaction of the business. They consume 31,800 ox hides, 1580 dozen calf skins and 4580 dozen sheep skins, worth \$287,432.

They produce sole leather, dressed calf skins and dressed sheep skins, to the value of \$463,320. The capital in the machinery, buildings, &c. is \$77,500.

BREWERIES.—At the present day Pittsburgh Ale is considered the best article brewed in the United States. An article of Kennet ale made by GEO. W. SMITH & Co. the leading firm in the trade, has a wide sale, and the demand both in the East and in the West is still increasing, incited by the fact that an equal article to the imported is furnished at less price.

The firm of GEO. W. SMITH & Co. mentioned above, formerly Geo. W. Smith, is widely known wherever Pittsburgh ale is sold—for the circular of which house we refer the reader to the concluding chapter of the book. Mr. Smith, the senior partner, has been engaged in the brewing business in Pittsburgh for twenty-three years, during which time the reputation of "Smith's ale" has spread into every State in the Union, and the business has increased until it now requires fifty men to transact the various operations in brewing of the firm. The malting capacity of their brewery is 100,000 bushels, and the brewing capacity is 14,000 barrels per annum, notwithstanding which large ability the firm is often unable to keep pace with their orders. The ale from this house may be found in every section of the Union, and, in all cases, is considered the best and leading article in the market.

Mr. Smith also has a large brewing and malting establishment at Wheeling, Va. the articles of which are equally as celebrated as those of GEO. W. SMITH & Co. at Pittsburgh.

With an equal skill in brewing to that possessed by the brewers in any other city, the pure soft water of the Allegheny river enables ours to turn out an article so superior, that it has taken and maintains the head of the market, in most every section of the Union.

There are now engaged here in the business five firms, and one in malting. These five breweries and one malt house employ 140 men, whose yearly wages amount to \$47,420. They consume barley, rye, hops and barrels yearly to the value of between 600 and \$700,000. They keep six steam engines running, and produce 43,000 barrels ale and porter, 180,000 bushels malt, worth between 700 and \$800,000. The capital in buildings, machinery and lots used for the business is \$120,000.

There are also twenty-three LAGER BIER breweries. They employ 59 hands, whose wages amount to \$18,720. They consume

barley and hops to the value of nearly \$100,000. Twelve steam engines are kept running, and they brew 113,000 kegs or quarter barrels lager beer, worth \$141,250.

STEAM CRACKER BAKERIES.—Of these there are two; also, four firms who manufacture by hand. These 6 factories employ 39 hands, whose yearly wages are \$12,064. They consume 10,450 barrels flour, 24 tons butter, 69 hogsheads sugar, 30,000 bushels coal and 220 cords wood, worth \$97,034. They produce crackers to amount of \$114,000. Large quantities of these crackers are shipped to the South and West, and Pittsburgh crackers are in many cities an article of regular quotation in the market reports.

MARBLE WORKS.—There are in this community six marble cutting establishments, where are cut all descriptions of monuments, images, furniture marbles, &c. &c. The workmen employed in these works are of great skill, and many of the monuments worked out by them evince much talent. The beautiful grounds of the Allegheny Cemetery contain numerous monuments from these establishments, which are subjects of admiration to visitors from a distance, as well as our own citizens.

They employ 70 hands, whose wages amount to nearly \$27,000. They use about 400 tons marble, and manufacture articles to value of \$60,000.

CABINET WARE AND CHAIR MANUFACTURE.—The manufacture of cabinet ware has always occupied a prominent position in the business of Pittsburgh. The trade is yearly increasing, and large quantities are annually exported. There are now in the city a large number of firms.

Sixteen of the principal firms employ 504 hands, whose annual wages amount to \$196,500, and the value of the materials consumed is \$107,792. These sixteen firms keep eight steam engines running and produce work to the value of \$503,000.

The workmanship upon the articles made is of the best quality, and the styles are fully equal to those of eastern houses.

SOAP AND CANDLE MANUFACTURES.—Of these articles there is a heavy amount made here.

Eight of the principal firms out of the number in operation employ 160 hands, whose yearly wages amount to \$36,920. They produce soap and candles to the value of \$1,000,000; one establishment alone producing 1,800,000 pounds star candles.

GLUE is also manufactured by some three firms, to the value of nearly \$30,000.

LIME is made by five firms, to the value of \$48,000.

SLATE ROOFING.—There is one firm here which does a very extensive business in slate roofing, taking contracts for work in all the towns around this city, and in the cities of Cincinnati, Chicago and St. Louis. We believe he is the only master slater in the West who is to any extent engaged in the business. The fact of his having frequent engagements at points throughout the West, is evidence that the style and quality of his work is entirely satisfactory. He employs 15 hands, whose yearly wages are \$7500,

and he uses in the course of his business five hundred tons of slate, and \$1800 worth of copper for nails, &c. The cost of slate roofing is given in the chapter of this volume on manufacturing advantages.

A steam WOOLEN STOCKING FACTORY is carried on in this city, where are employed 100 hands, and in which are used woollen yarn and dye-stuffs to the value of \$25,500. The hosiery made at this establishment is worth \$50,000.

There are two MATCH FACTORIES employing 22 hands, and making 15,360 gross of matches, worth \$10,752.

A ZINC WASHBOARD FACTORY is also carried on, where are annually made 3000 doz. washboards, worth \$6750.

There is one PORCELAIN TEETH MANUFACTORY, where are made 10,000 Teeth yearly, worth \$2000.

There is one KID GLOVE FACTORY, in which are yearly made gloves to the value of \$5400.

There is one ALCOHOL DISTILLERY. The products of the establishment are principally sold in the eastern cities. There are six men employed in the distillery, whose annual wages amount to \$2600. There are distilled 5000 barrels of alcohol and spirits, and 10,000 barrels of whiskey are yearly consumed in the production of those articles.

ETHEREAL OIL is also manufactured here, one establishment using in the making of the article 600 barrels of alcohol, and \$6000 worth of other materials, producing 20,000 gallons of oil.

LINSEED OIL.—There are three establishments for the manufacture of this description of oil in operation in the city. They employ annually 12 hands, consume 32,000 bushels flaxseed, and make 52,000 gallons oil, worth \$52,000, and 2600 bushels oil cake, worth \$19,500.

LARD OIL is manufactured by two firms. We give no statistics of these factories, as the one is a new establishment, and has as yet no figures to give—and we were unable to ascertain the yield of the other in time for this edition. The two will, we presume, produce something like 60,000 gallons yearly.

VARNISH FACTORIES.—Of these there are two in operation, who make and sell 20,000 gallons varnish annually, worth \$40,000, beside oils, turpentine, &c. worth \$6500.

TOBACCONISTS.—There are seventeen firms engaged in the wholesale manufacture and sale of Tobacco. In addition there are many exclusive retail stores, in some of which a limited amount of manufacturing is carried on, of which we take no account, although some of them are quite extensive.

The above seventeen firms employ 198 hands, whose yearly wages amount to \$61,776. They manufacture and sell tobacco and cigars to the value of \$443,770.

There are two PAPER MANUFACTORIES and one of Book Binders' Boards. The two paper mills employ 57 hands, and produce paper annually to amount of \$86,640. In connexion with this it is proper to say there are also three PAPER AND RAG DEALERS, whose business amounts annually to \$80,000.

There are in this community five **FLOURING MILLS**, consuming grain to amount of \$1,000,000, and producing Flour and feed stuffs to nearly the value of \$1,100,000.

There are also two **SPICE MILLS**, employing 13 hands, and selling ground spices to the value of \$25,000.

There are two **WHIP AND UMBRELLA FACTORIES**, consuming materials to the value of \$17,000, and producing and selling \$34,000 annually.

There are two **SADDLETREE FACTORIES**, manufacturing \$5,000 worth of saddle trees yearly.

Two firms are engaged in the manufacture of **COFFEE EXTRACT**, an article used by many as a substitute for coffee. The sales of these two firms of this article amount to \$60,000 yearly.

POTTERIES.—The burning of earthen ware is carried on to a considerable extent here. There are many advantages, which will probably render Pittsburgh quite a central point for the production of many varieties of this ware. The facilities which we possess for shipping this heavy article North, East, South and West, into nearly all the States of the Union, give this city a prominent position as a location for the transacting of the business, while the advantages of fuel are sufficient to decide the question of engaging here in the manufacturing. A proper survey of the surrounding country will, without doubt, so full are the hills of various qualities of fire clay, develop deposits of clay and flint, which in themselves and in combinations, would furnish materials suitable for making many of the finer qualities of Queensware.

There are now engaged in the business here, six firms, who employ 58 hands, and burn and sell ware to the value of \$33,850.

There are three **BRUSH MANUFACTORIES** in the city, employing 21 hands, and producing brushes to the value of \$40,000.

There are two factories for the making of **BLACKSMITHS' BELLOWS**, of which there is made \$10,000 worth.

SADDLERY AND HARNESS MANUFACTURING.—In this branch of manufactures there are six prominent houses, who make up harness and saddlery. Besides these there are a number of shops who work on a very small scale, not keeping more than one journeyman employed, besides the proprietor. These six principal houses employ 106 hands, and produce and sell saddlery to the value of \$146,500.

There are four **TRUNK FACTORIES**, distinct from the saddlery business, which four firms employ 36 hands, and make and sell trunks to the value of \$30,000.

There are two manufactories of **PATENT LEATHER**, which, when in full operation, employ about 90 hands; the capacity of the works is equal to 23,000 hides per annum. At present, owing to the high price of hides, they are running but half capacity.

There are three **WOOLEN FACTORIES** in operation in the city, but we have not their statistics.

There is also one small manufactory of **HORN COMBS**; its productions are, however, annually not over the value of \$1000.

ICE CHESTS AND WIRE SAFES are quite extensively made at one establishment, where are yearly turned out 300 ice chests and 100 wire safes.

BOBBINS are also made by one factory devoted to that branch, which turns out 50,000 bobbins annually, worth \$3000.

There is one manufacturer of **CORKS** in the city, whose sales annually amount to 34,000 gross.

A factory for the making of **CORN BROOMS** and **WISPS** is carried on. They consume sixteen tons of broom corn, 22,400 broom handles, employ five hands, and turn out 1880 dozens brooms annually.

CHILDREN'S CARRIAGES are made by one firm, and is the only one west of the mountains. The establishment employs eight hands, and turns out over 1000 children's gigs yearly, beside the other articles manufactured.

There are two **BOX MANUFACTORIES**, who turn out annually 62,400 boxes for the use of the various establishments of the city. The boxes are of a value of \$12,480.

Two firms manufacture **PUMPS** and **BLOCKS**. They employ eleven men, and turn out articles in their line of a value of \$10,000 annually.

TURNERS.—There are, besides several turning establishments which are portions of cabinet shops, six firms which pursue the business of turning disconnected from every other occupation. They employ 41 hands, and the value of their business is \$55,000.

ROPE WALKS.—There are carried on here three rope walks, where are manufactured ropes, &c. regularly; besides which there are several small establishments that are fitful in their labors. They employ 57 hands, and manufacture rope, cords, &c. to the value of \$117,451.

UPHOLSTERING.—The business of upholstering is carried on by three firms in Pittsburgh. These firms employ about 85 hands, a large proportion of whom are women. The value of the business, so far as we could ascertain, amounts to \$70,000.

PIANO MANUFACTURERS AND DEALERS.—There are in the city four piano manufacturers and dealers, whose sales amount annually to \$160,800.

There is one extensive **OIL CLOTH MANUFACTORY**, rendering necessary a building 120 feet long, fifty feet wide, and 50 feet high, besides out-buildings. The firm employs 20 hands, whose weekly wages are \$150. They manufacture from 60,000 to 70,000 yards of floor oil cloth yearly; also, 6000 table spreads, and 11,000 yards green window oil cloth, and a variety of other articles of a similar nature. They consume among other articles, 10,000 bushels coal, \$6000 worth of oils, and \$2000 worth of white lead.

GOLD LEAF MANUFACTURING is prosecuted by one establishment. The principal business is in the making of gold foil for dental purposes, of which he produces yearly about 600 ounces. Thos. S. Uffington, the first gold-beater in the United States, established the business in New York in 1807, and this factory in Pittsburgh in 1837.

LITHOGRAPHING.—This business is carried on by three firms. There is no better work in this line of business done in the United States than is executed here. The demand for the work keeps twelve presses running, and employs a large number of engravers, pressmen, draftsmen, &c. The value of the business we are unable to give.

SURVEYING AND ENGINEERING INSTRUMENTS are made by one firm, who employ seven hands, and produce instruments to the value of \$7000 yearly.

CHAPTER XXI.

MERCANTILE INTERESTS.

The term "Merchants of Pittsburgh," first occurs in Smollett's History, in a mention of the transactions of Major General Stanwix, at Fort Pitt, in the winter of 1759-'60.

In 1803, the entire commerce and manufactures of Pittsburgh were summed up at \$350,000. Of this, \$92,000 was created by what was then termed the "bartering trade," or the exchanging of one article of merchandise for another.

In 1808 there were fifty store-keepers or merchants. In 1817 there were 109 stores of various kinds in the city; and in 1836 there were 250 stores, at which time the mercantile business was computed to be \$13,100,000; and that of the commission business at \$5,875,000, or \$18,975,000 in all.

In the days of the pack-horse and the road-wagon, the mercantile business of Pittsburgh increased rapidly, and the city became the resort of wholesale buyers from all sections of the West and Southwest. There is to be remarked in the history of every city, a period when the business of the place languished and declined, caused sometimes by revolutions in the spirit of the trade throughout the country, and at other times by occurrences purely local. From one of those depressed periods, caused by the change in the mode of transacting the wholesale business all over the Union, brought about by the rail roads, Pittsburgh has emerged, and will again enjoy a large wholesale jobbing trade.

Taking into consideration the fact that in all particulars the Pittsburgh wholesale merchant stands upon equal footing with those of the Eastern cities, in all the facilities for procuring his stock—buying from and acting as the agent of the same manufacturers—importing from the same European sources—paying never more than they for the articles in which he deals, and able from the less expense, to do an equally remunerative business on five per cent. less profit, one point upon which to found this belief is apparent. The fact that the lines of the Pittsburgh rail road system are daily carrying through this point large numbers of western buyers, whose inquiries, prompted by their own interests, into the advantages of purchasing here, will naturally do away with an unjustifiable prejudice which has for some years past existed in many sections of the West against buying in this city, while their reports will advertise in the most effectual manner that between our jobbing houses and those of the Eastern seaboard, there is no other difference than such as results to the disadvantage of the latter from increased cost of traveling expenses, freights, &c. is another of the points which lead to the belief expressed. The soundness of which point is proven by the fact, that within the last three years there is an increase in the amount of the jobbing business done in Pittsburgh, and that this year a better and heavier class of merchants than heretofore have purchased large bills here. In remarking which it is proper to mention yet further, that the fact that those buyers have previously bought in New York and Philadelphia,

is conclusive that their judgment and business experience discovered no difference in favor of the Eastern market over Pittsburgh, and that there must have been some advantage in favor of the latter, to induce the breaking off of old connections to open new accounts here.

All things in prices, terms and other business considerations in purchasing being equal between the two points contrasted, it is at once obvious to the prudent buyer that the advantages already mentioned as belonging expressly to Pittsburgh, for the advantage of lessened expenses and some others also attain to Pittsburgh over western cities seeking the same trade, is sufficient to decide which point is the best.

There is probably no city in the Union where business and living expenses are so small as in Pittsburgh, and a brief consideration of her geographical position and her railway system will show that there are few cities which offer so great facilities for the transaction of a heavy commercial business.

The position of Pittsburgh as a distributing point, has already been displayed, and there cannot be any doubt upon the ultimate greatness of her commission business. With so largely available means for the reception of the productions and merchandise of both the East and the West, and commanding such routes as are there described, it can be no matter of hesitancy to say that her commission business is destined to a heavy increase.

As a point for transactions in produce the same advantages present themselves as are prominent in her adaptability for commission business, and there is no room for doubt but that capital and exertion would soon render this one of the largest grain and produce markets in the country. The varied and extensive advantages for transportation already recited as possessed by Pittsburgh, gives the facility for reception, while the same channels present avenues for forwarding it to the seaboard either speedily or cheaply and more leisurely.

The tables which in other cities exist in the books of their Boards of Trade, by which the values of the imports and exports of a series of years may be presented and compared, are not to be had in this city. The Merchants' Exchange which organized some two years ago, has never as yet gotten effectually at work to record those statistics within its province which are so valuable for reference. We therefore present only the regular branches of the mercantile business, beginning with

WHOLESALE DRY GOODS.—There are a number of extensive firms in this line of business in the city. They will at all times duplicate the prices of the markets of New York and Philadelphia in their line of goods. The stocks they keep are extensive, well assorted, and judiciously selected. They are at all times prepared to extend to solvent buyers as ample accommodation as the eastern houses. The expense of transacting business in Pittsburgh is trifling to what it is in the eastern cities; and the difference between the personal and business expenses of a dry goods firm in Pittsburgh and one in New York or Philadelphia, is of itself a very pretty profit. This simple fact is one to be considered by the prudent purchaser. The greater the expenses of transacting business and of living, the larger per cent. of profit is necessary to meet such expenses and realize the expected per cent. upon the capital employed; and it is the customer of the

jobber who pays these expenses. In firms doing business to an amount varying from \$200,000 to \$300,000 yearly, situated in New York, Philadelphia and Pittsburgh, there is a difference of over five per cent. in favor of the latter place in expenses, which saving the Pittsburgh jobber is able and willing to place in the pocket of his customer in the prices of the goods he selects. It is not the intention to here advance facts arguing why western men would find their advantage in buying here; if it were, many of similar bearing could be mentioned, but the one fact advanced is so suggestive in its application, that its presentation is natural. There are in this city two classes of dry goods jobbers, one that is strictly wholesale and one that has two departments—a wholesale and a retail. There are of the first class, or strictly Wholesale Houses, 9 firms. Of the second class, or Wholesale and Retail Houses, there are 16 firms. These 25 houses employ 211 hands, and transact business yearly to the amount of \$2,334,239.50.

In addition to these wholesale houses, there are some 20 houses of an exclusive retail character, whose sales amount to \$500,000 more.

HARDWARE.—There are a number of hardware firms here who always keep excellent and extensive stocks. They are prepared to meet customers at any time, upon as accommodating terms as any of the eastern houses; and they make it a standing offer to all who visit this market to duplicate eastern bills, without regard to freights. The wholesale hardware firms of Pittsburgh stand upon the same footing in the procuring of their stocks as the best eastern houses. In all cases the articles come from the same American manufactories, and are imported in the same way from Europe, and at the same cost. There is no reason why the merchant purchasing from the eastern jobber should not do so from the Pittsburgh jobber; and there is the advantage of freights, traveling expenses, time, &c. as a reason why he should purchase at Pittsburgh. There are no better selected stocks to be found in the East than here, and as before stated, the Pittsburgh jobber is prepared and willing to extend as liberal terms to the solvent purchaser as can be had in any city of the seaboard. The same remarks made touching the expenses of transacting business in dry goods, applies equally to the hardware houses, and the position upon which the jobbing houses of Pittsburgh of all kinds stand, may be thus summed up. While in every advantage of procuring their stock, style, assortment, profuseness, cheapness, &c. they stand equal with the jobbers of any eastern city, they have at all times, in the smallness of their expenses, the advantages of five per cent. over the East; which per cent., as previously mentioned, they are willing to give the advantage of to their customers.

These 15 houses employ 57 hands, pay \$53,183 duty, and import English goods to amount of \$181,654. Their sales are \$615,000. The most of articles now comprised in a hardware stock are of American manufacture; with the exception of small cutlery and some of the coarser qualities of table cutlery, but few articles are now imported by the hardware merchants, consequently the amount of importations is but small in comparison with former days, when the bulk of a hardware stock was foreign manufactured articles.

BOOTS AND SHOES.—In this business there are several large firms,

whose stocks are always well selected, and who purchase from the same manufacturers, and at the same prices as eastern jobbers in this line. The fact that all their advertisements contain a standing offer to duplicate any eastern purchased bill, is evidence of how secure they feel of their ability to compete with the shoe dealers in the cities of the Atlantic coast. For evidence of which ability and inclination, we refer the reader to the card of H. CHILDS & Co. in the concluding chapter of this book. The firm referred to is the oldest and the most extensive in this line of business in the city, having commenced business in the year 1824; from which time they have gone on increasing their business, until they now do so extensive a trade as justifies us in saying they are the first house in the city, as well in ability, as in amount of sales. While mentioning this house, it is not improper to say that the long experience of this firm in the shoe trade enables them to buy their stock at the lowest rates, and the financial ability of the house enables them to offer extra inducements to purchasers. Recurring again to the fact that this house is able and willing to duplicate any eastern bills, we take occasion to repeat that in all particulars, either of stock, price, or terms, the western merchant can be as well accommodated in Pittsburgh as in the east. There are 7 wholesale houses, who employ 40 hands, and sell yearly 13,200 cases of boots and shoes, worth \$456,000.

In addition to these there are 25 retail houses, whose sales amount to \$150,000 more.

There are also manufactured in this city, for retail and for wholesale sales, over 100,000 pairs of boots and shoes, worth \$200,000.

HAT, CAP AND FUR DEALERS AND MANUFACTURERS.—There are nine wholesale and manufacturing houses in this branch of the business in Pittsburgh. To remark upon the inducements they offer to wholesale buyers, would be simply to reiterate what has already been said in relation to other branches of the wholesale trade of this city. They enjoy the same advantages of small expenses, good facilities for procuring stock, capital, experience, and ability to offer accommodating terms to their customers. These nine firms employ 56 hands, whose wages amount to \$23,960. They make and sell hats, caps and furs yearly, to the amount of \$250,000.

In addition to the foregoing firms, there are a number of "shops," that manufacture for their own retail orders, whose production is not taken into the account.

CHINA AND QUEENSWARE DEALERS.—There are four wholesale houses of the above character. These firms employ 15 men, and import 2200 crates of ware, on which they pay \$16,500 duties; their sales amount to \$75,000 annually.

CLOTHING HOUSES.—There are nine clothing houses doing a wholesale clothing business. The remarks made in relation to the other branches of the mercantile business of Pittsburgh apply equally well to this branch.

These nine houses employ 1000 hands, mostly women, in manufacturing clothing, whose wages are light. They sell clothing to amount of \$600,000.

There are, besides these, 45 firms manufacturing clothing exclusively for their own retail sales, which amount to \$360,000, and who

occasionally sell a wholesale bill. This is exclusive of the merchant tailor establishments, some of which are very elegant, and transact a large business.

DRUG BUSINESS.—There are in the city eleven wholesale druggists and dealers in patent medicines. Six of the eleven are the proprietors of medical preparations of great value, as considered either for their medical efficiency, or for their reputation and consequent large sales.

Two of these are Messrs. FLEMING & BRO. proprietors of *McLane's Celebrated Medicines*, and BENJ. PAGE, JR. & Co. proprietors of the popular *Berhave's Holland Bitters*. For the circulars of these two houses, we refer the readers to the concluding chapter of this book; also, for the circular of the house of B. L. FAHNESTOCK & Co. one of our heaviest and most enterprising drug houses—which is fully prepared to fill any order for drugs as cheaply as it can be put up in any of the eastern cities.

These eleven firms employ 102 hands, and sell annually to the amount of \$725,000.

There are in addition a large number of prescription druggists, whose sales are not included in the above estimate, which only exhibits the wholesale business.

In the regular drug line the wholesale druggists have at all times heavy stocks, and stand in all particulars upon as good footing for the transaction of business, as any of the wholesale houses we have mentioned. The advantages we noticed as possessed by those for competing with the Atlantic cities, are also held by these.

TRIMMING STORES.—There are two houses whose exclusive business is the sale of dress and bonnet trimmings. These two houses keep large stocks of every variety of trimmings. They employ in the transaction of their business seventeen hands, and their yearly sales of trimmings are \$111,000.

DEALERS AND IMPORTERS OF VARIETY GOODS.—There are six wholesale houses of variety goods here. In these establishments will be found fine stocks from which to select, and the same ability to duplicate eastern prices; or in other words, sell as low as at any point in the country. These houses employ 23 hands, and sell annually to amount of \$284,000.

MANUFACTURING CONFECTIONERIES.—The manufacturing and wholesaling confectionery is largely carried on here. There are eight manufacturing and wholesale houses in this line of business. The extent to which this business is transacted is evidence that there are strong inducements to purchase in this market.

These eight firms employ 50 hands, manufacture annually between 600,000 and 700,000 pounds of candy, and transact a wholesale confectionery business to the value of \$280,000 to \$300,000.

BOOKS AND STATIONERY.—There are ten firms who deal in books and stationery. These firms employ twenty-nine hands, and sell \$255,000 worth of books and stationery. Their stocks of books are large and good, and the assortment of stationery complete and extensive.

JEWELRY AND WATCH BUSINESS.—This business is one usual to all large cities, and of course in this city does not vary in its character

from that of other localities. There are fourteen prominent and large jewelry houses, besides a number of a minor character.

These fourteen firms sell \$375,000 worth of jewelry and watches per annum. There are sixteen firms besides, whose business is of a more limited nature. The sales made yearly by these amount to over \$90,000.

HARDWARE, SADDLERY AND. CARRIAGE TRIMMINGS.—In this line of business there are two houses who keep heavy stocks, which they are prepared to offer to purchasers as low as any of the eastern houses. They employ eleven hands, and sell articles in their line to the amount of \$130,000.

IMPORTERS OF TIN AND DEALERS IN METALS.—There are in the city three firms whose business is embodied in the caption above. These firms import from 12,000 to 15,000 boxes of tin annually, and their sales of tin, zinc, Russia iron, ware, &c. amount annually to \$250,000.

WALL PAPER DEALERS.—In this line of business there are four firms engaged, who at all times keep a fine stock, and are prepared to sell at eastern prices. They employ 13 hands, and sell about \$70,000 worth annually.

LEATHER DEALERS.—There are seven wholesale leather houses in the city, employing thirty-three hands, and selling \$250,000 to \$300,000 worth of leather annually.

PORK PACKERS.—There are in this city seven pork dealing and packing houses. These houses employ two hundred and fifteen hands in the pork packing seasons; kill 47,000 hogs, and make annual sales to the amount of \$645,000. The capital in buildings used by them in the prosecution of their business is \$90,000.

WHOLESALE STRAW AND MILLINERY GOODS.—There are in this city two establishments of the above description, who keep heavy stocks of articles in that line, and are equally prepared with the other wholesale houses to meet customers upon the best terms, whether of time or prices. These firms employ about 20 hands, and sell merchandise in their line to amount of \$150,000 annually.

The wholesale shoe houses also deal to a considerable extent in straw goods, and usually keep good stocks of bonnets and hats.

BONNET MANUFACTORIES.—There are two establishments which make it an especial business to get up bonnets of silk, crape, gauze, linen and other materials. They employ in this business 60 hands, and manufacture bonnets of the description mentioned to the amount of \$50,000 yearly.

WHOLESALE LIQUOR DEALERS AND RECTIFIERS.—Of this class of business there are 32 firms. They employ 109 hands, and use \$7,300 worth of charcoal. They sell annually 2,000,000 gallons of whiskey, worth \$500,000, and other liquors to the amount of from \$250,000 to \$300,000.

THE GROCERY TRADE.—The general tenor of the remarks upon the various branches of the mercantile business, is applicable to this division of the commerce of Pittsburgh. Country dealers have no hesitation in saying, that, did no other interest draw them to the eastern cities, they would invariably purchase their bills of groceries here—there being no advantage in purchasing East over buying here,

and on articles in this line of business the freights create sufficient difference to give this city the preference. The upward movement which we have elsewhere mentioned as going on in the other branches of the wholesale trade, is also perceptible in this. This branch of our commerce was injured, as well as other divisions, by the rail roads bringing this city so near in time of travel to the East; but reaction has evidently commenced, and we believe, from the same reasons given in the commencement of this chapter for a large increase in the general jobbing business, that the grocery trade of the city will also become yearly heavier and more important.

There are in this city 60 Wholesale Grocery Houses, 20 Produce and Commission Houses, 10 Forwarding and Commission Houses, 4 Iron Commission Houses, 2 Wool Commission Houses and 4 Ship Chandlers, which 100 houses sell annually of Groceries and Produce, and the like articles in their line, over \$14,000,000. From the difficulty of getting at many of the transactions in produce, the figures given are considerably below the actual amount of business.

There are many heavy retail grocery houses in the city whose stocks are bought exclusively in the East, some of whom sell \$100,000 worth of goods. The retail stores in the grocery line number over 100, whose sales range from \$100,000 to \$10,000, making an aggregate of \$1,000,000. In addition there are a large number of small retail grocery stores, of which we make no mention whatever.

There are three CARPET WAREHOUSES, who employ 14 hands, and sell \$125,000 worth of carpets yearly, and about \$10,000 worth of oil cloths. Of the above amount, about \$15,000 are importations, on which between \$6,000 and \$7,000 duties are paid.

There are three AUCTION AND COMMISSION HOUSES, doing a general Auction business, whose sales annually range from \$700,000 to \$900,000.

PRINTING.—The art preservative of all arts is well represented in the city, there being 11 daily papers published here, besides a number of weekly papers and monthlies, some of which have a large circulation. There are also 11 Job Printing offices, employing 138 hands, running 26 machine and 18 hand presses.

CHAPTER XXII.

SOCIETY, ART, EDUCATION, &c.

There are many matters of interest relating to the city of Pittsburgh untold in the preceding pages. The object in preparing its statistics, has been merely to give the figures of our manufacturing and of our leading wholesale and export business.

In the aspect presented by the statistics of this volume, of a bustling, thriving, industrious community, it must not be supposed that all the more elegant accompaniments of cities are banished from this. The society will be found to possess great refinement and high culture, accompanied with a plain, honest hospitality, which soon endears

to the stranger this location as a home. There are in the community whose business is given, over twenty public schools, whose course of study is very thorough, besides two high schools, where the studies of the student are of the highest grade; and in addition there are a number of private academies of a high reputation, conducted by gentlemen of fine acquirements. The Western University, a permanently endowed, and a chartered institution, is also located here.

Prominent among the Educational Institutions of our country at the present day, and especially so in the growing and enterprising cities of the West, is a class of schools known at the East by the name of Mercantile Academies, and in the West as Commercial Colleges. Of these there are in the city of Pittsburgh two. The most extensive and thoroughly organized is the **IRON CITY COLLEGE**, **F. W. JENKINS**, Principal, to the circular of which, on the second page of cover, we refer the reader. These Institutions will work a revolution in the loose and careless mode of transacting business which has in too many instances characterized the business men of this country. That there has existed, and now exists, a want in the business community which these institutions are calculated to meet, is acknowledged by every intelligent man who is at all conversant with the theory or the practice of accounts. Young men who expect to become acquainted with the science of accounts by serving an apprenticeship in any Commercial or Banking House, will find it next to impossible for them to do so; they may become familiar with the routine and details of a particular business, but accountants they never can become. A course of instruction in one of these Colleges extending through a few months, will be found to give the merchant or tradesman a more comprehensive and varied knowledge of his profession than he could acquire by years of patient labor and unwearied toil in the most extensive business house of the country—for here the subject is presented in a condensed and scientific form, by men of ability and experience. The knowledge acquired here is to the future merchant what the science of geometry is to the engineer, surveyor and astronomer; what grammar is to the linguist; what a sound and practical theory is to piecemeal knowledge picked up by the wayside. No young man should think, whatever his general qualifications may be, of engaging in business without availing himself of the opportunities afforded by these schools, and even those already in business would find it infinitely to their advantage if they were so situated as to reap the benefits of some of these Commercial Colleges. In this age of rail road speed and universal diffusion of knowledge, the business man cannot wait to train up his accountants, but expects to find them, as he finds every other article of his need, made to order and ready at a minute's warning.

To show the appreciative feelings for these Institutions, and their popularity, we give a few statistics of the Iron City College, referred to above.

During the two years in which the present proprietors have had the management of this College, there have been matriculated from it 900 students, 487 entering during the past year from this city alone. There are at present engaged 14 professors and teachers in the several departments of the Institution; and in addition thereto, frequent

lectures, on various subjects, from some of the most eminent men, not only of this city but of the Union.

There are also nearly 100 churches of the various religious beliefs.

There are three Public Libraries: "The Young Men's Mercantile Association;" "The Young Men's Christian Association," and "The Anderson." A number of fine Halls are frequently occupied by all the public celebrities in the Musical, Dramatic and Literary world for Concerts, Readings and Lectures. We possess artists of great talent and genius, in all the walks of art. In Music, although we have no great number of professionals, there is in our private musical circle a large amount of ability and talent. The Drama is well understood and properly appreciated, although there is but one Theatre here.

In the comforts of a city this community is well supplied. The streets and sidewalks are paved for miles in every direction. Two extensive Water Works distribute the pure sweet water of the Allegheny throughout the two cities, and three Gas Works supply, through over thirty miles of pipe, the finest of gas to the cities and some of the boroughs, and arrangements are making for the formation of a fourth company for its manufacture.

There are a number of excellent Hotels of various capacities. The three principal of which are the Monongahela, the St. Charles, and the St. Clair.

Much is said of our smoke and consequent disagreeabilities, yet it should be remembered there is not a city without some drawback, and when the smoke complained of results in wealth, progress and health, it can easily be put up with, the more especially as a walk of from ten to fifteen minutes brings the pedestrian out on high grounds, beyond the smoke and its consequent annoyances.

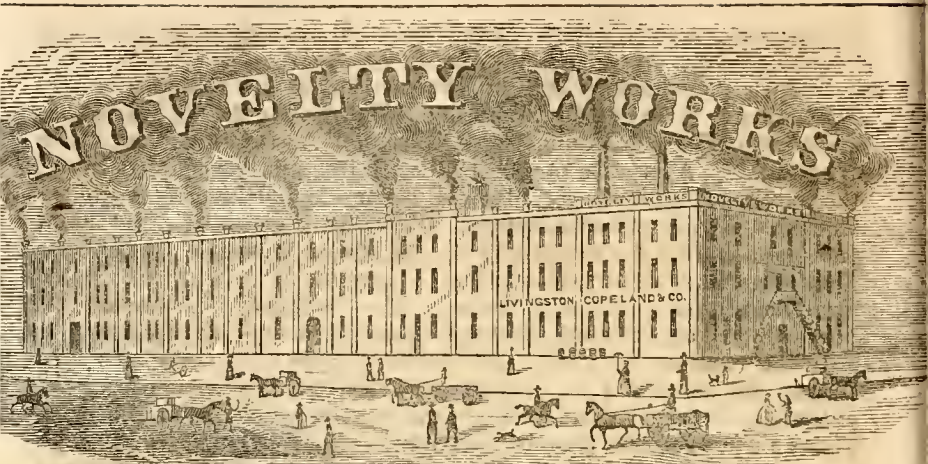
CHAPTER XXIII.

PROMINENT BUSINESS HOUSES.

Having now introduced the reader to the City of Pittsburgh and its suburbs; shown our facilities for manufacturing, for transportation, and for transacting the various kinds of business, we now take pleasure in introducing a few of our prominent business houses, being one of the best in each of their respective branches.

We can most cordially recommend these firms for all those qualifications desirable to the buyer, and have no hesitation in saying that the various articles from their manufactories are equal to any of the same kind made in the city.

Domestic Hardware.



LIVINGSTON, COPELAND & CO.
PITTSBURGH, PA.

By Letters Patent, this firm are the sole proprietors of the
RIGHT OR LEFT DOOR LOCK,

Commonly called the "JANUS FACED LOCK," until the 17th December, 1863—no other establishment having authority to manufacture or vend the same. These Locks are adapted to any door, whether Right or Left, to any thickness, are of neat structure and low price.

WE ALSO MANUFACTURE

PLATFORM SCALES,

From the smallest size up to

**HAY, GRAIN AND CATTLE SCALES,
COUNTER SCALES,**

**PAIN'T AND COFFEE MILLS,
MALLEABLE IRON CASTINGS**

of every variety, &c. &c. and the thousand and one adaptations
Iron assumes under our hands.

Corner of Grant and First Streets, Pittsburgh, Pa.

Refer to page 55 for extent and particulars.

B. L. FAHNESTOCK & CO.

Late of the firm of B. A. Fahnestock & Co., and Successors to Fleming Brothers,

IMPORTERS AND

Wholesale Druggists,

No. 60, corner Wood and Fourth Streets,

PITTSBURGH.

DEALERS IN FOREIGN AND DOMESTIC

DRUGS, MEDICINES AND CHEMICALS,

PAINTS, OILS, DYE STUFFS,

PERFUMERY, FINE FANCY AND ROSIN SOAPS,

SURGICAL & DENTAL INSTRUMENTS,

Trusses, Supporters, Spices, Snuffs, Superior Inks, Pure Wines
and Brandies, for Medicinal purposes,

ARTISTS' MATERIALS

Of all descriptions, as

TUBE PAINTS, CANVAS, &C.

Flesh, Hair, Leather, Nail, Paint, Shoe, Scrubbing and Wall

BRUSHES,

Castor, Linseed, Lard, Neatsfoot, Olive, Sperm, and

TANNERS' OIL,

WHITE LEAD, RED LEAD, LITHARGE

ZINC PAINT, DRY AND IN OIL,

Putty, Glue, Sand Paper, Emery, Concentrated Lye, Potashes,
Turpentine, Camphene, Burning Fluid, Varnishes,
Window Glass, Glassware, etc. etc.

WE ALSO DEAL IN ALL THE

PATENT AND PROPRIETARY MEDICINES OF THE DAY.

Proprietors of B. L. FAHNESTOCK'S VERMIFUGE, which is
guaranteed to give satisfaction in every respect.

Inducements offered to those who buy in large quantities.

H. CHILDS & CO. WHOLESALE SHOE WAREHOUSE,

BOOTS, SHOES,



AND LEATHER.

No. 133 WOOD STREET,
PITTSBURGH, PA.

Have in store a large and splendid assortment of Boots and Shoes, of the latest styles and fashions, in endless variety, selected with great care as to quality and sizes, adapted to the wants of the Western Trade.

Having purchased our Fall stock under a severe money panic, principally for cash, DIRECT from the manufacturers, we feel warranted in assuring our customers and merchants generally, that we will offer SUPERIOR inducements to cash or prompt six months buyers.

New York, Philadelphia or Baltimore bills duplicated.

Orders promptly and carefully filled.

H. CHILDS & CO.

P. S. Please refer to page 74, and see the opinion of a gentleman of our city, conversant with the business and business men of Pittsburgh.

GEO. W. SMITH.

C. HARTWELL.

GEO. W. SMITH & Co.**PITT STREET, PITTSBURGH, PENN'A.**

CONTINUE THE BUSINESS OF

BREWING, MALTING

AND

DEALING IN HOPS,

As heretofore, at Pittsburgh, Pa. and Wheeling, Va. and will be happy to supply with these commodities, old and new customers, on their usual liberal terms. The highest market price in cash is always paid for Barley, and contracts with growers for a series of years, are made on liberal terms.

PRICES OF ALE, PORTER AND BROWN STOUT,

(EXCLUSIVE OF CASKS.)

X Ale, - per barrel, \$8,00	XX Ale, - per barrel, \$8,00
Kennet Ale, " 9,00	Porter, - " 7,00
American Bitter Ale, 8,00	Brown Stout, " 9,00

All these in half barrels, at half these prices. No casks less than half barrels are put up.

PRICES OF CASKS.

Barrels, iron hooped, \$2; Barrels, wood hooped, \$1,25; Half Barrels, iron hooped, \$1,50; Half Barrels, wood hooped, \$1; these are always charged with their contents, but on their return, (free of charge) the money paid for them is refunded. Best metal Spigots for drawing Ale are sold at \$1,50; ditto with separate key, \$1,75.

PRICES OF THESE ALES, &c. IN PINT BOTTLES.

Ale, Kennet, - per doz. \$1,25	Porter, - - per doz. \$1,25
Ale, East India Pale, do. 1,25	Brown Stout, " 1,25

A small extra charge is made for barrels or boxes for packing.

These Ales, &c. are put up labeled, wired and tin foiled in the same style as like articles imported, to which they are superior in richness and flavor; and they are highly recommended by the medical profession as tonics for invalids, and others in delicate health.

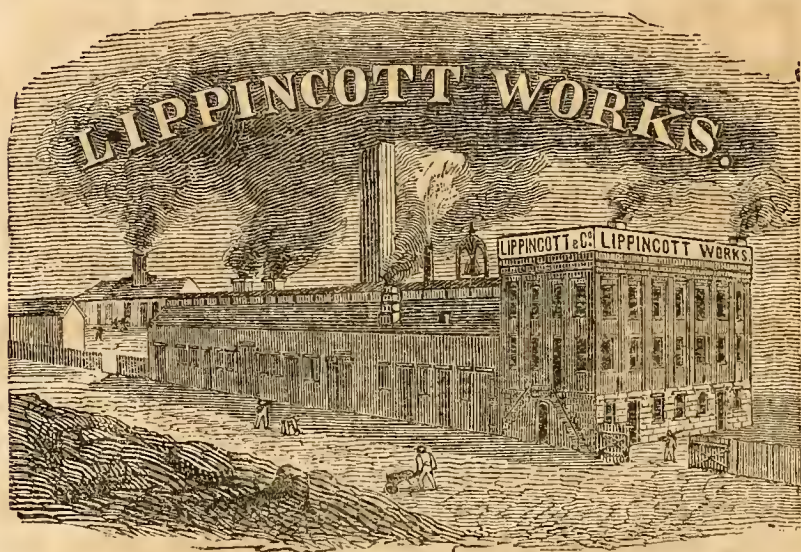
Smith's American Bitter Ale is guaranteed equal in flavor and keeping qualities to Allsop's and Bass' imported English East India Ale, so celebrated all over the world.

N. B. In returning empty casks, prepay freight and send Bill of Lading or Rail Road Receipts. Brewers and Distillers supplied with Malt and Hops of superior quality, on most reasonable terms.

See page 66 for further particulars.

LIPPINCOTT & CO.

MANUFACTURERS OF

AXES, SHOVELS, SPADES**C. S. Mill & Circular Saws,****FORKS, HOES,****PICKS, MATTOCKS, WEDGES,****HARROW TEETH, &c.****Warehouse, No. 118 Water Street,**

Four doors west of Monongahela House,

PITTSBURGH.

See page 51 of this book for further particulars.

WM. B. SCAIFE,

First and Second Streets,

Between Wood and Market,

PITTSBURGH, PA.

MANUFACTURES

COPPER PIPES,

SHEET IRON WORK,

Portable Forges, Blacksmith Work,

TORCH BASKETS, DECK STOVES,

COOKING STOVES, FOR STEAM BOATS & HOTELS,

CHAIN CABLES, HOG CHAINS,

Large Bolts, for Bridges, &c. &c.

STEAM BOATS PARTICULARLY ATTENDED TO.

ALSO, FRANCIS' PATENT METALLIC

LIFE BOATS & IRON YAWLS,

OF SUPERIOR MODEL AND FINISH.

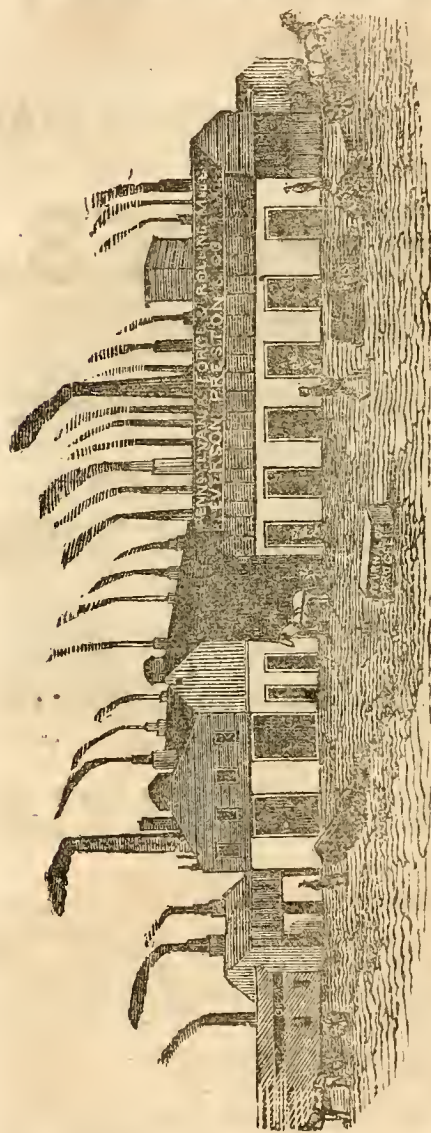
These world-renowned Boats are made of galvanized iron, the nails and fastenings galvanized, which prevents rust. They are corrugated or creased, which gives great lightness with strength, and avoids the necessity of timbers. They are formed out of whole sheets, thus requiring but few seams; the seams are double riveted, which prevents the rivets from tearing out in case of dingeing, and ensures tightness. These Boats are always ready for use, whether wet or dry; no caulking to fall out if dry, no rust if wet. They are found, from their lightness and durability, to be the very best boats for Yawls, Sounding Boats, Ferry-Boats, or for Farmers on the river, or fast Sail Boats.

SIZES---12, 14, 16, 18, 20 and 22 feet long.

CORK LIFE PRESERVERS. HAIR FELT, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{4}$ and 1 inch thick, an excellent non-conductor of heat, for covering Steam Boilers and Pipes; also, to cover Water Pipes to prevent freezing.

Public and Private Buildings heated in the most approved manner, by the Globe Furnaces.

See article on Copper Smiths, page 58; also Life Boats, page 56.

PENNSYLVANIA FORGE AND ROLLING MILL.**EVERSON, PRESTON & CO.**

Second Street, Eighth Ward, Pittsburgh, Pa.

MANUFACTURERS OF

Wrought Shafts, Cranks, Piston Rods,

RAIL ROAD CAR AND LOCOMOTIVE AXLES,

With every description of Hammered and Rolled Iron. Also, a superior article of Rail Road and Ship Spikes.

Car Builders, Rail Road men, and all dealers in Iron, are respectfully solicited to examine our manufactures.

Warehouse, Nos. 94 Water and 120 Front Streets.

(See page 45 and page 52.)

ISAAC JONES.

D. B. ROGERS.

D. B. ROGERS & CO.

MANUFACTURERS OF

ROGERS' IMPROVED PATENT

Steel Cultivator Teeth,

Corner of Ross and First Streets,

PITTSBURGH, PA.

See page 52 for further particulars.

PITTSBURGH STEEL WORKS.

JONES, BOYD & CO.

MANUFACTURERS OF

CAST STEEL,

Spring, Plow and A. B. Steel,

SPRINGS AND AXLES,

Corner Ross and First Streets,

PITTSBURGH, PA.

See page 46 for further particulars of Steel.

PAYNE, BISSELL & CO.

MANUFACTURERS OF
COOKING, PARLOR AND HEATING



STOVES,
GRATE FRONTS, FENDERS, RANGES, &c.

No. 235 Liberty Street, Pittsburgh.

Please read article on Foundries, pages 47 and 48.

A. LYONS.

SAMUEL BOYD.

A. LYONS & CO.

MANUFACTURERS OF

LOOKING GLASS

AND

PICTURE

FRAMES

No. 138 Wood Street,

PITTSBURGH.

Manufactory, corner of Seventh and Grant Sts.

All kinds of Fancy Mouldings constantly on hand—Rosewood,
Walnut, Maple, &c. &c.

The above firm have such facilities for manufacturing, that they are prepared to fill orders on receipt.

In all the qualifications required by the buyer, either of price, variety or terms, they consider themselves second to no house in their line of trade. They request all traders visiting the city to give them a call, confident that it needs but an examination of their stock to leave an order.

For the facilities of this market for rivaling any others in this article, we refer to page 63 of this book; and our own experience justifies us in saying that we can undersell the manufacturer at any other point.

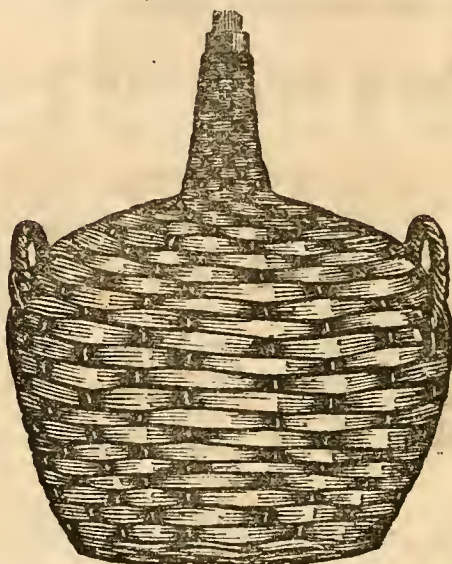
WM. M'CULLY.

MARK W. WATSON.

WM. M'CULLY & CO.

PROPRIETORS OF THE

PITTSBURGH, PHENIX,



EMPIRE AND SLIGO

GLASS WORKS,

MANUFACTURE

BLACK BOTTLES,**VIALS, DEMIJOHNS,****GREEN GLASSWARE**

AND

WINDOW GLASS,**Nos. 14 and 16 Wood Street,****PITTSBURGH, PA.**

☞ Particular attention paid to PRIVATE MOULDS, and orders filled with promptness and dispatch.

ADAMS, MACKLIN & CO.

MANUFACTURERS OF

FLINT GLASS:

ALSO, OF

LIGHTNING ROD

AND

TELEGRAPH INSULATORS,

Corner of Water and Repa Streets,

PITTSBURGH, PA.

The above firm having largely increased the capacity of their Works, will hereafter be enabled to keep on hand a supply of articles in their line, from which they can fill orders immediately upon their receipt.

Their facilities for manufacturing are now not excelled by any house in the city; and in the quality of their goods, and in prices, they consider themselves second to none.

Confident that in all particulars they can satisfy the buyer, they solicit a call from all traders in Glassware visiting the city.

Special orders carefully and promptly executed.

SOLE PROPRIETORS,

BENJAMIN PAGE, JR. & CO.

BOERHAVE'S HOLLAND BITTERS



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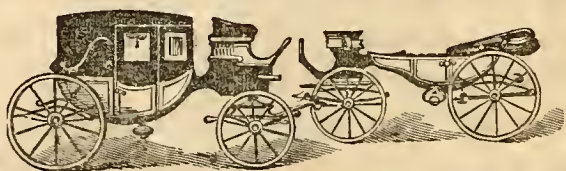
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Red Lead, Common,	
Litharge,	
Bar Lead,	
Putty, in Bladders,	
Putty, in Bulk,	
Whiting,	
Glue,	

Zinc Paint, Best, in Varnish,	
Zinc Paint, Best, in Oil.	
Zinc Paint, Extra, “	
Zinc Paint, No. 1, “	
Zinc Paint, N. Jersey, in Oil,	
Zinc Paint, Dry, in Barrels,	
Linseed Oil,	
Linseed Oil, Boiled,	
Spirits Turpentine,	
Coach Varnish, Best,	
Furniture Varnish, No. 1,	
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